

## Refrigeration Featured in Canadian National Exhibition



A large crowd was attracted to the Frigidaire booth by the pantomime demonstrations which emphasized the selling points of the unit.



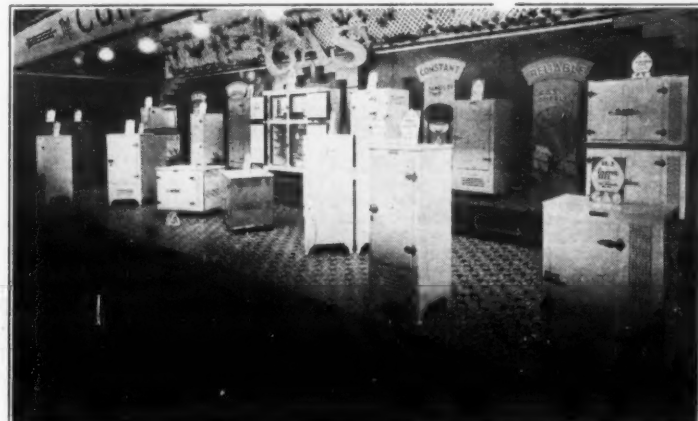
Many floor sales were reported by the Norge officials following their showing at the national exhibition.



Kelvinator of Canada, Ltd., featured the "Talking Kelvinator" in its exhibition at the recent Canadian National exhibition.



One of the features of the show was the modernly equipped kitchen, which was shown by Canadian General Electric Co.



Six models were included in the exhibit of Consumers' Gas Co. of Toronto, distributor for Electrolux gas refrigerators.



A rock garden with flowers and a Hermetic unit running under water formed the basis of the Serval window display of Corry Electric Co.



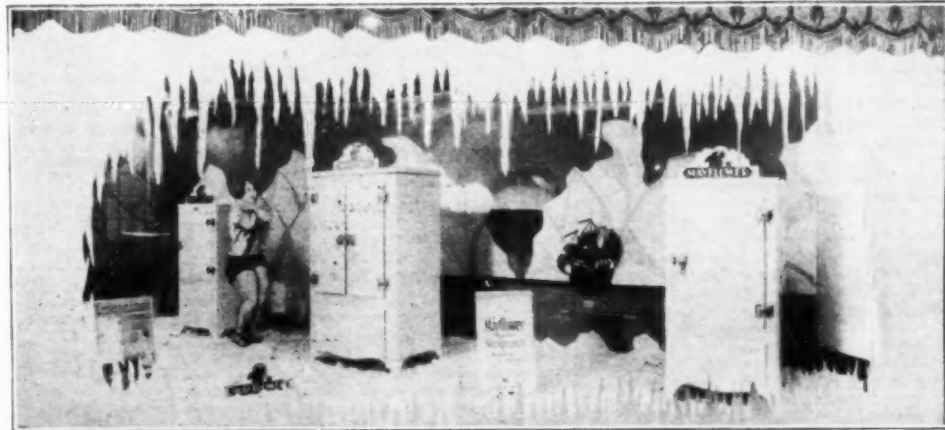
An igloo with a General Electric unit forming the top of the structure brought cold to the front in the Eastern Shore Public Service Co. window.



Majestic electric refrigerators were the subject of a window display of C. F. Hovey Co., Boston department store.



An ice cavern formed the background for a Kelvinator window display which featured the "Comparison Contest."



Icicles played a prominent part in the Mayflower window display of H. Feinberg, Inc., Chester, Pa.



## ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office.

The business newspaper of the refrigeration industry

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TEN CENTS PER COPY  
TWO DOLLARS PER YEAR

### SALES CAMPAIGN PLANNED AT KING KOLD CONVENTION

Illinois Moulding Co.  
Announces 3-Year  
Guarantee

By Phil B. Redeker

CHICAGO—Two hundred and seventy King Kold dealers and salesmen assembled Friday night, Oct. 2, at the factory of the Illinois Moulding Co. to lay plans for the first organized King Kold merchandising drive in the Chicago district, heard the announcement of the company's 3-year guarantee, listened to the first of a series of King Kold radio broadcasts, and lent verbal assent to the scheme for an intensive sales drive as outlined by H. E. Richardson of Young, Lorish, and Richardson, Chicago distributor.

The announcement of the 3-year guarantee against defective material and workmanship, with one year's servicing, climaxed Richardson's plea for concerted action to get "our share of the autumn sales, which, because of the intensive campaigning being carried on, will approximate 80 per cent of the peak months."

A direct mail campaign, in which the prospect will be bombarded with four sets of literature, will form the principal promotional work in the campaign.

There will also be the 100 radio programs of 15-minute duration over WGES in which dance tunes will be mingled with King Kold sales talks, and \$1,000 in bonus money for salesmen will be offered by the Illinois Moulding Co.

In addition, tentative plans were made by a group of dealers for advertising spreads in color to be printed in metropolitan and suburban papers.

High points at the meeting, described by Richardson as a "business tonic,"

(Concluded on Page 4, Column 3)

### GAS ASSOCIATION TO OPEN MEETING OCT. 12

ATLANTIC CITY, N. J.—The merchandising of gas refrigeration, and its possibilities in air conditioning will be discussed during the annual convention of the American Gas Association here, Oct. 12 to 16.

H. S. Christman of the Philadelphia Gas Co. will talk on gas refrigeration from the viewpoint of the commercial manager on Wednesday afternoon, Oct. 14; and later the same afternoon, N. T. Sellman of the Consolidated Gas Co. will discuss research work being done to apply gas refrigeration to air conditioning.

An extensive exhibit of Electrolux gas refrigerators will be placed on the large stage of the Municipal auditorium. The display will be in charge of F. E. Sellman, vice president, and William Reynolds, advertising manager.

### MAJESTIC PRODUCTION OF RADIOS 4,125 SETS DAILY

CHICAGO—Production of Majestic radio sets was increased Oct. 1 to 4,125 daily, according to an announcement made by Don M. Compton, vice president and general manager of the Grigsby-Grunow Co.

Mr. Compton also announced that the Hupp Motor Car Co., Detroit, and the Nash Motor Co., Kenosha, have adopted the Motor Majestic as optional equipment and that they are advising their dealers accordingly.

### AUTO SUPPLY FIRM SELLS ICE-O-MATIC UNITS

SPRINGFIELD, Mass.—The Auto Electric Supply Co., Inc., operated by Morris and John H. Forer, has been appointed Williams Ice-O-Matic refrigerator dealer.

### TACOMA STORE APPOINTED STARR FREEZE DEALER

TACOMA, Wash.—The Fisher Co., department store, has been named as the exclusive retail agents in Tacoma for Starr Freeze electric refrigeration.

### Adds to Duties



F. E. SELLMAN

Electrolux vice president is now in charge of Servel Hermetic sales.

### 12 DISTRIBUTORS IN CHICAGO EXHIBITION

CHICAGO—Twelve electric refrigeration distributors are occupying more than 6,000 sq. ft. of exhibition space at Chicago's first exclusive Refrigeration Exposition being held this week in the electrical merchandising shops of the Commonwealth Edison building at 72 W. Adams St.

The exposition was planned by the distributor and sales branches of the various refrigerator manufacturers upon the suggestion of the refrigeration bureau of the N. E. L. A. The entire first floor of the Commonwealth Edison building, with a floor area of 50,000 sq. ft., is given over to the exposition.

In addition to the exhibits and demon-

(Concluded on Page 4, Column 4)

### Newill Finds New Use For Ice Cubes

DAYTON, Ohio—While sending out invitations to a party, friends of Mrs. E. B. Newill, wife of Frigidaire's vice president in charge of engineering, found they needed more sponges for moistening the mucilage of envelopes and stamps.

No sponges being available, Mr. Newill showed them how to use Frigidaire ice cubes instead. It worked.

### MERCHANT & EVANS MAKES APARTMENT INSTALLATIONS

PHILADELPHIA—Merchant & Evans Co., through its distributor in Baltimore, Penn-Mar Co., has installed in the 11-story Ambassador apartments, consisting of 127 apartment houses, an "M & E" multiple system consisting of 400 800-C compressors, 6 350-C compressors and 127 freezers and cabinets. The Ambassador apartments is the largest building of the kind in Baltimore.

Other Baltimore M. & E. installations are as follows: Kirk Avenue Development, eight compressors and cabinets, 100-D, melting capacity from 175 MC to 1300 WMC; Potomac Development, private dwellings, 40 M. & E. units in cabinets.

### SILENT AUTOMATIC, TIMKEN OIL BURNER FIRMS MERGE

DETROIT—Merger of the Silent Automatic Co. and Timken-Detroit Co., large oil burner manufacturers, was announced Oct. 2 and the merged company will continue under the name of the Timken Silent Automatic Co.

Haldeman Finnie, vice president of the Timken-Detroit Co., and who will continue as vice president and general manager of the new company, made the announcement of the merger which will take effect on Jan. 1, 1932.

Col. Fred Glover, president of Timken-Detroit Axle Co., has been named president of the new company.

### Westinghouse Distributors Plan to Get More Domestic Business in 1932 at Mansfield Sales Meeting

By F. M. Cockrell

MANSFIELD, Ohio—Westinghouse intends to get a larger share of the domestic electric refrigerator business during 1932, according to plans laid at a three-day meeting of distributors held here Oct. 1, 2, and 3.

The first morning session was devoted to organization and the appointment of committees. During the afternoon, J. S. Tritle, vice president and general manager; S. M. Kintner, vice president in charge of engineering; Carl D. Taylor, assistant sales manager, merchandising department; C. E. Allen, commercial vice president; L. W. Lyons, credit manager, and C. V. Graves discussed distributor's performance in 1931, organization and sales plans for 1932 to reach agreed quotas, dealer discounts, the distributors responsibility for having trained personnel and the source of supply, and the three-year guarantee.

Representatives of the Commercial Investment Trust Co. explained plans for promoting time-payment sales.

Thursday evening the distributors were given a dinner at the Westbrook Country club where they were addressed by Dr. G. W. Allison, director of the Electric Refrigeration Bureau, National Electric Light Association, and F. M. Cockrell, publisher of ELECTRIC REFRIGERATION NEWS.

The Friday morning session, under the chairmanship of C. D. Taylor, was taken up with discussion of advertising and sales promotion plans.

W. S. Henri, president of Henri, Hurst & McDonald, Chicago advertising agency, outlined the necessity of full dealer coverage and training and the distributor's responsibility in building dealer distribution.

R. W. Pierce, vice president of the same agency, talked on 1932 advertising plans.

### COPELAND APPOINTS 2 REPRESENTATIVES

MT. CLEMENS, Mich.—The appointment of T. B. Hannan and Frank H. Johnston as field representatives for Copeland Products, Inc., is announced by W. D. McElhinny, vice president in charge of sales.

Mr. Hannan will cover Wisconsin and the northern peninsula of Michigan. He has had a broad experience in specialty merchandising, getting his first training in this field with the National Cash Register Co., with whom he was connected for five years.

For three years he was employed by Frigidaire at their Twin City branch as salesman both for household and commercial refrigeration equipment and as commercial and field supervisor. For more than a year and a half, he was field representative for the George C. Beckwith Co. of Milwaukee and Minneapolis, Copeland distributor for Wisconsin and Minnesota.

Mr. Johnston's territory will comprise Ohio, western Pennsylvania, West Virginia, and eastern Kentucky. Previously to joining Copeland he was production control manager for General Motors Radio Corp. He was assistant general sales manager for the Day Fan Electric Co.

### TEMPRITE BONUS WON BY KELVINATOR SALESMAN

DETROIT—J. N. Staples, salesman for the Detroit branch of Kelvinator Sales Corp., was the first prize winner in the fall sales campaign of the Liquid Cooler Corp.

The dealer's entry blank in the contest was accompanied by an order received by Mr. Staples.

Western Kelvinator Co. at Kansas City, Mo., also entered the prize-winning class when W. I. Taylor sold coolers for installation in Carpenter's Hall.

### MOHAWK DISTRIBUTOR VISITS FACTORY

NORTH TONAWANDA, N. Y.—H. W. Goldstein, vice president of the Anchor Lite Appliance Co., Pittsburgh distributor for Lyric radios and Mohawk refrigerators, made a two-day visit to the Lyric-Mohawk factory recently.

Marshall Adams, sales promotion manager of the appliance department, explained plans for cooperative advertising and presented the program for contests, shows, demonstrations, stores and decorations, selective direct mail and employe sales campaigns.

W. N. Kennon handled the subject of the 1932 newspaper advertising plans and procedure.

George W. Moister, manager refrigeration sales promotion, covered the topics of retail sales development, educational program for sales managers and supervisors, and compensation of supervisors and retail salesmen.

The report of committee on new models was given by J. F. O'Donnell, assistant refrigeration sales manager. Remarks were also made by A. B. Reynolds, manager merchandise manufacturing, and T. S. Perkins, manager merchandise engineering.

In the afternoon session, commercial refrigeration water coolers and industrial syndicate agreements were discussed by R. C. Cosgrove, manager commercial refrigeration section.

M. C. Morrow, sales manager merchandising department instructed the group on department store relations and policy, the Westinghouse store plan, cooperation between metropolitan and general distributors and agent jobbers.

H. A. D'Arcy, manager central sta-

(Concluded on Page 4, Column 5)

### 5 SOUTHERN STATES SELL 86% OF QUOTA

NEW YORK—The five states in the southwestern division of the Electric Refrigeration Bureau of the National Electric Light Association sold 86 per cent of their combined yearly quota during the first seven months, figures announced recently by the national bureau show.

Texas led the group of seven states with the sale of 82 per cent of its quota. In this state, sales for the seven-month period were 18,325 units, while the yearly N. E. L. A. quota is 19,913.

Oklahoma followed with 7,090 sales for 86.6 per cent of its quota of 8,187 units for the year. Arkansas sold 81.6 per cent of its quota during the first seven months, the figures show. In this state, 2,858 units were sold, while the annual quota is 3,504.

Mississippi with 2,190 sales was fourth on the list of five states in the division. This state has a yearly quota of 2,860 units and 76.6 per cent of the quota was sold in the first seven months. Louisiana was last on the list, having sold 71.5 per cent of its quota. Sales numbered 3,884, while the quota for the state is 5,434.

### Closes Sale by Cablegram

BOSTON—Leo J. Selya, salesman for Buckley and Scott, Westinghouse distributor, was ready to close the sale of two models recently but the prospect sailed for Europe before signing an order.

Mr. Selya contacted the manager of the prospect's property and induced him to cable the owner in Europe.

Instructions to sign the order were cabled back and Mr. Selya secured a sale.

### G. E. CAMPAIGN CANDIDATES GIVE STUMP SPEECHES

WATERBURY, Conn.—Stump speeches by candidates for election in Modern Homeville state of Refrigerania were highlights of the fall sales meeting of more than 100 dealers, sales representatives, and the personnel of Modern Home Utilities, Inc., General Electric refrigerator distributor.

The fall sales campaign was explained to the dealers by J. E. Neilly, manager. S. G. Trainor, sales manager, was presented a set of golf clubs for being the sales manager with the largest per cent of quota in the wholesale district in the recent blimp contest.

### GOLD NOTE ISSUE RETIRED AT 105 BY KELVINATOR

Year's Balance to Show  
Increase in Cash  
Resources

DETROIT—Kelvinator Corp. retired all of its remaining outstanding 6 per cent Gold Notes, due in 1936, at the call price of 105 on Sept. 30.

George W. Mason, president, points out that during the fiscal year which ended Sept. 30, 1930, the company had retired Gold Notes to the par value of \$925,500, leaving \$1,603,500 outstanding as of that date.

After the final retirement of the remainder of this issue the company will have on hand on Oct. 1, 1931, approximately \$3,000,000 cash, compared with \$1,553,000 a year ago, and net working capital of about \$7,550,000, as compared with net working capital of \$5,960,295.89 a year ago.

"In other words," Mr. Mason explains, "the company's earnings in this difficult year have been such as to enable it to retire its \$1,603,500 funded debt, double its cash on hand, showing an increase of approximately \$1,500,000 in working capital."

"The fiscal year just closing will show net earnings in excess of those for either 1929 or 1930. The first two quarters of this year showed smaller earnings than the same periods of the previous year, but the earnings for the April-May-June quarter were greater than the earnings for the same period in any previous year of the company's history."

"The last quarter, just closing, should show a fair net profit even after year-end adjustments, as compared with a material loss in this quarter in previous years. The improvement has been progressive."

### FOREIGN CHEFS TALK AT COOKING SCHOOL

CLEVELAND, Ohio—The first international cooking school ever held in this part of the country was recently conducted in the Refrigeration Institute of the Cushman Co., under the direction of Mrs. Helen M. Murray, home service director for the General Electric refrigerator distributor.

Menus demonstrated each day included Chinese, Italian, French, Hungarian, and American recipes.

The average daily attendance during the five-day session for women was between 200 and 250. On the sixth day, Saturday, more than 300 children and almost as many mothers were present.

(Concluded on Page 4, Column 3)

### NORGE DEALER PUTS ON DISPLAY OF TELEVISION

SEATTLE, Wash.—A television demonstration at Fraser-Paterson, Seattle Norge dealer, brought many new visitors to the fifth floor display of these refrigerators.

The educational and good-will exhibit taught crowds of adults and children the precise status of television, and served to interest them in the complete line of Norge refrigerators.

### BEAUMONT BUYS TEMPRITE UNITS FOR CITY HALL

BEAUMONT, Tex.—J. N. Robertson of the Neches Electric Co., Temprite distributor, reports a recent installation of four model No. 110 Temprite wall fixtures containing cooling units, in the Beaumont City Hall.

### MAJESTIC RETAIL STORE IN SPRINGFIELD OPENS

SPRINGFIELD, Mass.—W. F. Larkin & Son have opened a retail store for the sale of Majestic refrigerators. The senior member of the firm was for many years a department head of Forbes & Wallace, Inc., leading department store.



## DEPARTMENT STORE PLACES 12 ON REFRIGERATION STAFF

ATLANTIC CITY, N. J.—The refrigeration sales division of the M. E. Blatt department store here is adding 12 outside salesmen to its refrigeration sales force, company officials announce. Newspaper and billboard advertising are featured in the present campaign being carried on to promote Mayflower refrigerators.



**Balsam-Wool**  
**Sealed Slabs**  
**NATIONALLY**  
**ACCEPTED**  
*Completely satisfactory*  
*Refrigerator Insulation*

**WOOD CONVERSION COMPANY**  
Industrial Sales Offices:  
CHICAGO, 360 N. MICHIGAN AVE.  
New York, 3107 Chanin Bldg.  
Detroit, 515 Stephenson Bldg.  
San Francisco, 149 California St.

## REFRIGERATION MAIL PIECES TO BE SHOWN

BUFFALO—Manufacturers of refrigeration products and parts will have pieces of direct mail literature in the display of the 50 best campaign pieces of the past year at the fourteenth annual conference and advertising business show of the Direct Mail Advertising association here, Oct. 7, 8, and 9.

Advertising material of Electrolux Refrigerator Sales, Inc., Frigidaire Corp., General Electric Co., refrigeration department, and Armstrong Cork and Insulation Co. will be in the display which was selected by judges at Philadelphia.

Vance C. Woodcox, sales promotion manager of Kelvinator Corp., will speak at the Thursday afternoon session on "Planning, Preparing and Merchandising a Dealer Help Campaign."

A list of notable speakers are on the program, including Spencer B. Hord, Eastman Kodak Co.; I. A. Hirschman, Lord & Taylor, New York; Charles R. Wiers, past president D. M. A. A., Niagara Falls, N. Y.; Ralph Hirtz, managing director, Hotel New Yorker; Harold J. Potter, advertising manager, Welch Grape Juice Co., Westfield, N. Y., and Paul T. Babson, president, United Business Service, Boston, Mass.

## INDIANAPOLIS EXHIBITION OF REFRIGERATORS LARGE

INDIANAPOLIS—Under the sponsorship of the electric refrigeration and radio divisions of the Electric League of Indianapolis, the first radio and electric refrigeration show ever held in Indianapolis closed Oct. 7.

Despite the fact that the show was a straight merchandising exhibit, with no music or other entertainment, the attendance was excellent.

The committee which planned the

show consisted of Adolf Wagner, Wagner Radio Co.; A. F. Head, Hoosier Electric Refrigerator Corp., G. E. distributor; G. W. Hyde, Griffith-Victor Distributing Co., Servel; Ted C. Brown, secretary-manager of the Electric League, and Samuel G. Howard of the Indianapolis News.

The refrigerator distributors and the lines displayed were: Gibson Co., Norge; State Radio Co., Starr Freeze; Capitol Paper Co., Ice-O-Matic; Hoosier Electric Refrigerator Corp., General Electric; Capitol Electric Co., Majestic; Griffith-Victor Distributing Co., Servel, and Westinghouse Electric Supply Co., Westinghouse.

## New Department Heads



**J. M. CLARKE**  
Appointed commercial sales manager of Servel Sales, Inc.



**CARL J. CONKEY**  
Promoted to position of sales manager of national accounts by Servel.

## OIL BURNER HEAD SEES COMPANIONATE SELLING

CLEVELAND—"I believe that it won't be long until the large oil burner and electric refrigeration manufacturers will get together on distribution, through both their retail branches and distributors," W. J. Smith, vice president and general manager of Cleveland Steel Products Corp., manufacturer of Torridheet oil burners, said recently.

"It is good business for them to keep their retail branches busy on as close as possible to a year-round basis—and to give their distributors and dealers the benefit of this method of making more money," he stated.

The Detroit branch of Kelvinator Sales Corp. recently undertook the sale of Torridheet oil burners.

Mr. Smith is confident that this plan will work out profitably for both the refrigeration manufacturer and his company.

"A very substantial percentage of our entire dealer organization is making a double profit—one from a well known brand of electric refrigerators, the other from Torridheet," Mr. Smith continued.

"Of course, many dealers for other oil burner manufacturers also handle electric refrigeration—and make money on both branches of their business. This seems to me to be the final answer to the question, 'Should a dealer handle both oil burners and electric refrigeration?'"

## SOUTH CAROLINA FIRM SELLS WESTINGHOUSE

SPARTANBURG, S. C.—The Odom Radio & Refrigeration Co. has taken over the agency for the Westinghouse electric refrigerator, according to an announcement by L. A. Odom, president of the concern.

## RUTHENBURG PRAISES SWOPE'S LABOR PLAN

MT. CLEMENS—"The most interesting development during the annual meeting of the National Electrical Manufacturers Association," Louis Ruthenburg, president of Copeland Products, Inc., and chairman of the refrigeration section, believes, "was the proposal by Gerard Swope to unify industries and stabilize employment and income of workers."

"The basis of the Swope plan is that industry should regulate itself with the purpose of minimizing the effect of depression such as that through which we are now passing. Although we have made great strides in national advancement and wealth," Mr. Ruthenburg said, "this progress has been punctuated too frequently with periods of depression which in spite of our great wealth bring terrible hardships on the vast majority of our people."

### Run without Governor

"Our industrial machine has been like an engine without a governor. When there is a full head of steam the engine races itself until the steam is exhausted and then the engine has to slow down or stop until another head of steam is generated."

"Many plans have been proposed, some of which have had merit. However, not only must the plan have merit, but it must have the support of responsible leaders of industry to put it into effect. This latter feature distinguishes the Swope plan."

Mr. Ruthenburg believes that "the general demand on the part of the public for a plan to ameliorate the severity of business depressions and the sufferings consequent to millions of our people will have to be complied with eventually. The question is whether industry should take the lead or wait on the government to take the initiative."

"If we wait for state and governmental action, we will be confronted with a variety of state and national laws that will seriously handicap, if not defeat, the purposes for which such laws are enacted."

"It is obvious that the employees, employers and members of an industry in cooperation with representatives of the public under federal supervision, are best qualified to adopt whatever methods will most effectively accomplish the objects sought."

"Obviously the plan is too comprehensive to be discussed in detail in a few minutes. It provides a basis for discussion and there will no doubt be many suggestions for its improvement in various parts. Mr. Swope, himself, expects this and in fact desires it. He feels that he has provided a basis on which procedure along these lines can be followed."

## DEALER RECOVERING FROM SERIOUS ILLNESS

CHARLESTON, S. C.—(UTPS)—L. D. Rubin, president of Louis D. Rubin Electrical Co., electric refrigeration dealer, is recovering from a serious illness in the Richmond, Va., hospital. He is expected to return to Charleston by October 15.

# SCIENTIFIC RESEARCH Plus 25 YEARS' EXPERIENCE Result in a New Line of Copper-Fin COMMERCIAL EVAPORATORS

IN presenting this new line of commercial evaporators, McCord enjoys a very definite and important advantage over evaporator manufacturers already in the field. McCord started from scratch. McCord was able to develop a unified, standardized line, whereas others have developed their various models from individual evaporators built on order for a large number of manufacturers.

As a result, McCord Commercial Evaporators are more nearly tailored to the specific requirements of each individual installation, without the complications of stocking an unreasonable number of different sizes.

This is an important advantage from your standpoint. But even more important is the efficiency of McCord Commercial Evaporators. Copper-fin construction and scientific fin-spacing has resulted in an increased efficiency that enables you to use a smaller unit to accomplish the desired result and thus quote a lower price—or you can use the same size McCord Unit as you would other makes and secure lower temperatures through its superior performance.

Every order will be shipped the same day your order is received. This fast service makes it possible for dealers to take care of any requirements on short notice and further cuts down the number of units dealers need carry in stock.

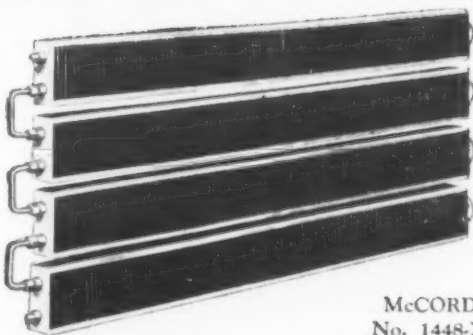
Write to-day for the new McCord Evaporator Catalog, just off the press. It contains the first specific cooling efficiency data ever made available to commercial evaporator dealers. Discounts will be included with your copy of this catalog.

REFRIGERATION ACCESSORIES DEPARTMENT  
**MCCORD**  
RADIATOR & MFG. CO. - DETROIT, MICH.

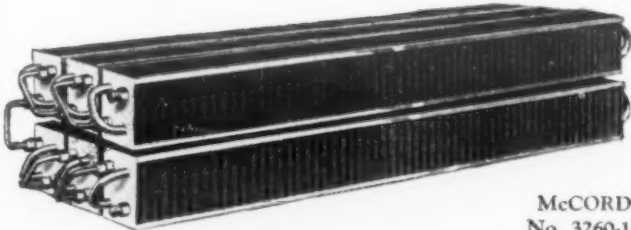
**ONLY 36 SIZES**  
Provide 297 Combinations  
Fitting any Requirements



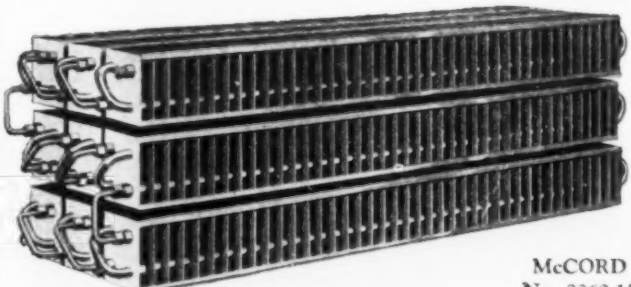
MCCORD  
No. 1160-5



MCCORD  
No. 1448-X



MCCORD  
No. 3260-10



MCCORD  
No. 3360-15

**One Fact is Preferable**  
to  
*much argument*

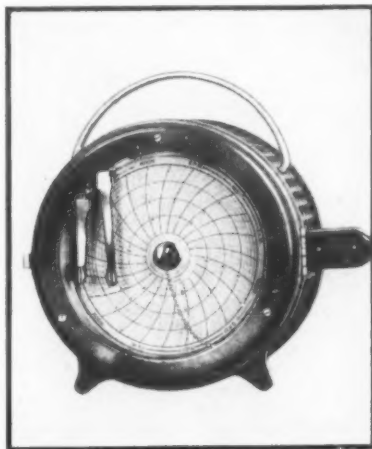
WHEN you or your service men are in trouble, it's a good time to call in BRISTOL'S handy little Model 144T.

Let the owner or housewife say the refrigerator has gone bad or run wild! Don't argue. Instead find out. Put BRISTOL'S Model 144T Time and Temperature Recorder on the job and see just what the temperature in the box really is and how often and how long the refrigerator motor does run.

Model 144T will tell you...and your customer. It will give on one chart a continuous record for 24 hours, or for 3 days if you prefer this. There's

THE BRISTOL COMPANY • WATERBURY • CONNECTICUT  
Branch Offices: Akron, Ohio, Birmingham, Boston, Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco

**BRISTOL'S**  
TIME AND TEMPERATURE RECORDERS *for Refrigerators*



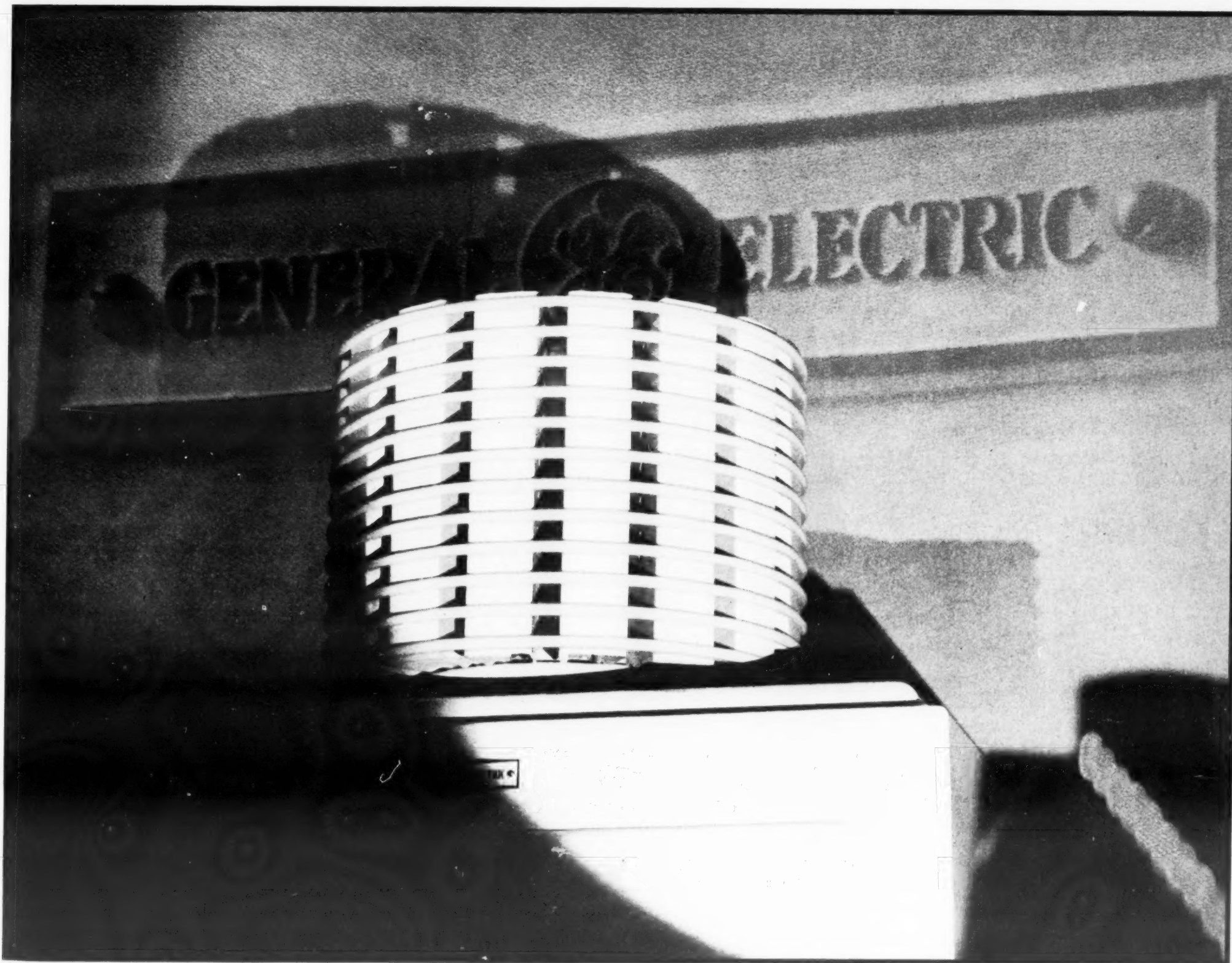
no opportunity for dispute. Model 144T and its record are unprejudiced and convincing.

Write for Bulletin 379. It gives information you will want to know about this splendid recorder for electric refrigerator service.



# PUBLIC PREFERENCE

*that yields greater NET profits to dealers*



**A** MILLION General Electric Refrigerators in little more than three years! Concrete evidence of public preference—preference that is constantly *growing*, because an unparalleled performance record has turned a million users into a million G-E salesmen.

Less sales resistance, quicker turn-over, larger volume—and a product that *stays* sold! That's why General Electric dealers show a greater NET profit every month—every year. Back of a 4 year spotless record of product performance is the strongest dealer support known to the industry. All year 'round national magazine advertising, and out-door posters, spectacular signs, radio, local newspapers, direct-mail to selected prospect lists, special floor, window and show-room displays, keep the public constantly conscious of the General Electric Refrigerator and the

local dealer who serves each community. Salesmen are given special training and provided with selling tools that open prospects' doors. Slide films for home presentation bring the G-E story to the home-maker in her own language, in her own living room. Local, sectional and national contests keep the interest of salesmen constantly at a high pitch.

Powerful dealer support, splendid product performance, and such vital sales advantages as the famous Monitor Top, the sealed-in-steel mechanism, ALL-Steel cabinet construction, Sliding Shelves, acid-resisting porcelain interiors—unite to speed up turn-over, increase sales volume and produce greater NET profits for General Electric dealers! General Electric Company, Electric Refrigeration Department, Section DF 10-1, Hanna Building, 1400 Euclid Avenue, Cleveland, Ohio.

**GENERAL  ELECTRIC**  
**ALL-STEEL REFRIGERATOR**

DOMESTIC, APARTMENT HOUSE AND COMMERCIAL REFRIGERATORS • ELECTRIC WATER COOLERS



# AMAZING INCREASE

IN FLEXIBLE RUBBER TRAY SALES

"Believe It or Not"... Ripley advertising sending thousands to dealers' showrooms for this modern convenience



Ice trays of flexible rubber make it possible for even children to easily remove an ice tray from a refrigerator and take out all the cubes instantly, with only slight finger-tip pressure—the cubes are clean, larger, colder, dry and sharp-edged.

**NOW...a freezing tray that releases ice cubes INSTANTLY!**

Here's a remarkable new freezing tray made entirely of flexible rubber. It releases ice cubes instantly—one at a time, or a whole trayful. No grid to remove! No running water needed!

The tray and the grid are molded all in one piece. There's nothing to bend out of shape. No extra parts. No metal anywhere to "freeze-on" to ice cubes. No wet cubes to stick together when stored. Sanitary. Easy to clean. Sturdy. Just the tray you've long wished for!

**A tray for your present refrigerator**

Or, if you already own an electric refrigerator, you can get a flexible rubber tray to fit it. Quick-freeze for Frigidaires—Dufflex for General Electric—Flexotray for Westinghouses, Kelvinators, Copeland, Leonard, Electrolux, Servel, Universal, Norge, Majestic, Truper, Apex, Starr and others.

See the local dealer of your make of refrigerator, or write us, giving make of refrigerator and number of ice cubes your ice tray holds.

THE INLAND MANUFACTURING COMPANY  
Dayton, Ohio

**Flexo Tray**  
ICE CUBES INSTANTLY... TRAY TO GLASS

Here's another striking Flexotray advertisement illustrated by "Believe It or Not"—Ripley. Another compelling message in the interesting series appearing in Collier's, The New Yorker, Polo and other prominent magazines.

Nation-wide attention is being attracted to flexible rubber freezing trays through a series of striking advertisements illustrated by "Believe It or Not"—Ripley. And this unusual campaign, appearing in leading magazines, is bringing amazing results.

Automatic refrigerator dealers everywhere report a surprising increase in demand for this modern

tray. Not only that—dealers have found that the flexible rubber tray opens doors to actual refrigerator sales, makes call-backs easier and more profitable!

Take the steps now to cash in on these increased profits. There are trays to fit all refrigerators. Write or wire for complete details either to the manufacturer of the refrigerator you sell, or direct to us.

THE INLAND MANUFACTURING COMPANY  
DAYTON, OHIO

**Flexo Tray**  
Registered U. S. Patent Office Patented and Trade Pending

ICE CUBES INSTANTLY... TRAY TO GLASS

## KING KOLD ANNOUNCES PROGRAM, GUARANTEE

(Concluded from Page 1, Column 1)

were the talks by S. J. Molner, general sales manager, who related the 40-year development of the Illinois Moulding Co. and told of the display at the Chicago Refrigeration Exposition; S. E. Bronsley, secretary-treasurer, who told of the company's financial rating and placed its capitalization at more than \$500,000; and I. Barnard, representative of Critchfield & Co., advertisers, who outlined the advertising campaign.

"For every refrigerator sold in the retail store, 10 are sold in the home, and upon that fact we are directing the activities for this campaign," Mr. Barnard stated.

The use of the direct mail literature was demonstrated to the dealers and salesmen, and the tie-up with the raffle, being held at the Refrigeration Exposition, was explained. Harry Reinwald, former Chicago district champion radio salesman, put on a sketch to show how a refrigerator sale could be closed in 10 minutes.

Various models of the King Kold refrigerators lined the walls of the fifth floor of the factory, and the three refrigerators to be exhibited at the Exposition, colored in black satin, cherry red, and lime green, formed the background for the speakers' platform. A model window display was also exhibited, as was the King Kold water cooler.

## CHEFS COOK FOREIGN FOOD AT DISTRIBUTORS' SCHOOL

(Concluded from Page 1, Column 5)

at the party held expressly for the younger folks.

On the first day Tom Luck, head chef in one of the leading Chinese cafes and night clubs in Cleveland, gave a demonstration of a number of Chinese dishes. Frank Monaco, owner of Monaco's Italian restaurant, supervised the demonstration of several Italian dishes for the women who attended the second day.

On the third day Rudolph Kirschner, one of the most expert of Cleveland's chefs in French dishes, prepared a number of the most popular items on Paris menus. The fourth day, Hungarian day, was featured by a number of demonstrations of Hungarian recipes prepared by Henry Klein, owner of Klein's Hanna restaurant.

The concluding day of the international school featured Mrs. Ruth Merriam Wells, director of the Cleveland News Home Service Division, who gave a complete demonstration of a number of puddings and cookies, pastries, and other desserts.

On the concluding day, when so many children attended, Harry Aleleban, of the Spang Baking Co., decorated a cake for the children, and this cake was awarded as a prize to Mrs. Vita Malloy of 3036 W. 100th St., who for two years has been an owner of a General Electric refrigerator, in which she has prepared a number of prize-winning desserts.

As the result of this unique cooking school, the Cushman Refrigeration Co. obtained the names of several hundred good prospects, and more than a score of refrigerators were sold during the week to women attending the school.

Plans are being made by Mrs. Murray to hold another similar school in the near future. In the meantime, she is continuing to hold her regular Friday afternoon cooking classes.

## Sales Head



C. A. MILLER  
New sales manager of Servel Sales, Inc.

## DAVIDSON TELLS PROGRESS OF N. E. L. A. CAMPAIGN

By J. E. Davidson

Chairman, N. E. L. A. Electric Refrigeration Bureau

PROGRESS of the N. E. L. A. campaign to help the electric refrigeration industry sell 1,000,000 units this year may be summed up as follows:

1. The Electric Refrigeration Bureau has greatly increased the amount of advertising and activity on electric refrigeration during 1931.

The 10-page section in the *Saturday Evening Post* of March 28 is a good illustration of the fact. Coupled with this are the special newspaper sections in the various cities, giving almost a complete coverage of the United States. I do not believe anyone will question the fact that had it not been for the Electric Refrigeration Bureau, there would not have been nearly so much advertising or activity in 1931.

2. The Electric Refrigeration Bureau has greatly increased public interest in electric refrigeration.

As proof of this, the approximately 300 joint electric refrigeration exhibits, conducted during our spring campaign, enjoyed a large public attendance.

3. The Electric Refrigeration Bureau has inspired sales organizations.

This fact is so evident that it needs no argument.

4. As a result of these three preceding contributions of the Electric Refrigeration Bureau to the industry, sales have been increased.

I feel quite sure that everyone will concede that the sales of electric refrigerators have been greater in 1931 than they would have been, had it not been for the Electric Refrigeration Bureau.

5. The Electric Refrigeration Bureau, through its cooperative advertising and merchandising calling together all parties interested in electric refrigeration, has developed a better understanding among these groups and has contributed greatly to the building up of good will.

There are many evidences of this splendid contribution, as you know.

6. The advertising of the Electric Refrigeration Bureau has increased the value of product advertising.

I think most everyone will agree that institutional advertising always increases the value of product advertising.

7. The Electric Refrigeration Bureau is developing an organization and a method which promise much for the future. Eight thousand five hundred communities are now taking part in this activity.

I believe this is one of the greatest contributions the Electric Refrigeration Bureau has made to the industry. Before the end of the three-year period, we will have a much larger organization than we have now, and this organization will be experienced and dependable.

## TWELVE DISTRIBUTORS SHOW REFRIGERATORS AT CHICAGO

(Concluded from Page 1, Column 2)

strations of practically all the models made by the 12 companies, there are other features which include a stage show, parts of which are broadcast, household economics demonstrations, cold cookery, a quiet-operation contest, refrigerators operating under varied conditions, "frozen art," and a demonstration of the new Carrier-York room cooler equipped with a Kelvinator unit.

Each company has one of the 12 display windows of the Commonwealth Edison building, the windows fronting on Adams, Dearborn, and Clark Sts.

The models displayed in these windows, some in colors, some with gold-plated fittings, are the heralds of the exposition which is being held inside.

Distributors or sales branches who are exhibiting include: Stover Co., Frigidaire; R. Cooper, Jr., Inc., General Electric; Chicago Copeland Co., Copeland;

## WESTINGHOUSE PLANS 1932 DOMESTIC SALES

(Concluded from Page 1, Column 4)

tion refrigerator sales, discussed central station relations and policy.

The support one line gives another was emphasized by Allen Billingsley, president of Fuller & Smith & Ross, Cleveland advertising agency, which directs advertising of appliances other than refrigeration.

Service procedure on domestic and commercial units and water coolers and methods of selecting service managers and other service procedure were presented by L. K. Baxter, manager service department.

Factory production and stocks was the topic assigned to F. R. Kohnstamm, director of merchandise.

Distributors took the platform in the Saturday session under the chairmanship of E. B. Ingraham.

The following were leaders of the discussion:

Nat Elin—Methods pertaining to the system of distribution of electric refrigeration.

B. W. Clark—Cooperation between agent jobber and metropolitan general distributor.

E. B. Ingraham—Retail selling of refrigerators.

J. H. Johnson—Apartment house sales.

C. L. VanZandt—Dealer discounts and distribution.

A. R. Lindburg—Distribution of Westinghouse refrigerators through department stores.

The following distributors were represented at the meeting:

Westinghouse Electric Supply Co., New York City (general headquarters), B. W. Clark, general manager; Harry Gansman, general sales manager.

New York City (eastern district), W. J. Jockers.

St. Louis, Mo., Riley DeLano.

Detroit, Mich., Gaylord Miller.

Milwaukee, Wis., John Schmidtbaur.

Cleveland, Ohio, James Sidway.

Syracuse, N. Y., H. J. Lavner.

Toledo, Ohio, Walter F. Bissell.

Rochester, N. Y., Fred Walton, Darrell Simpson.

### Independent Distributors

Frank H. Johnson-Son-Crowen, Inc., Chicago, Ill., F. H. Johnson.

Parks and Hull, Baltimore, Md., G. T. Parks, Bernard W. Carle.

Wisconsin Sales Co., Milwaukee, Wis., R. W. Barbour.

Edgar Morris Sales Co., Washington, D. C., George F. Kindley.

Monroe Hardware Co., Monroe, La., N. D. Abell.

Tafel Elec., Louisville, Ky., F. D. Phillips, J. S. Kelley.

Cincinnati, Ohio, K. E. Phares, Tafel Elec. Co.

Whitehill & Danforth, Pittsburgh, Pa., I. W. Danforth, Elmer Whitehill, Robert Eckert.

Van Zandt Supply Co., Huntington, W. Va., C. L. Van Zandt, C. P. Flannagan.

Danforth Refrigeration Co., Cleveland, Ohio, M. M. Forsythe, R. O. Brannan.

Gilham Electric Co., Atlanta, Ga., P. C. Gilham.

Moore-Handley Hardware Co., Birmingham, Ala., John Shaw.

Times Appliance Co., Inc., New York City, E. B. Ingraham, Willard Hall, R. C. Hill, E. A. Bonnevillie.

American Radio Distr. Co., Columbus, Ohio, A. Goldenberg, Ted Goldenberg, E. F. Mercer, E. C. Brauning.

Elin Co., Newark, N. J., and Philadelphia, Pa., Nat Elin, Robert Friedel.

Moock Electric Co., Canton, Ohio, Harold Moock.

Wetmore-Savage Co., Boston, Mass., R. P. Wise, Bruce Wetmore.

Buckley-Scott Co., Boston, Mass., (Jack) Scott.

Columbian Electric Co. and Satterlee & Blue, Inc., Kansas City, Mo., W. B. Satterlee.

Iron City Electric Co., Pittsburgh, Pa., W. M. Kline.

McCarthy Bros. & Ford, Buffalo, N. Y., Karr Parker.

Inter-Mountain Appliance Co., Denver, Colo., Thomas Savage.

Lindburg Refrigeration Co., St. Louis, Mo., A. R. Lindburg.

Connecticut Electric Refrigeration Co., New Haven, Conn., A. W. Chase.

Penn. Elect. Engr. Co., Scranton, Pa., A. F. Smith.

Other organizations represented were:

Henri, Hurst & McDonald, Chicago, Ill., W. B. Henri, R. W. Pierce, R. B. Bell.

Commercial Investment Trust, New York City, Robert Seymour, C. F. Gilbert.

National Elect. Light Association Elect. Refrigeration Bureau, New York City, Dr. G. W. Allison.

Electric Refrigeration News, Detroit, F. M. Cockrell.

WESTINGHOUSE DEALER FOR

TERRE HAUTE NAMED

TERRE HAUTE, Ind.—Standard Electric Sales Co., new electrical dealer, will handle Westinghouse electric refrigerators and Electrochef ranges. Joseph Potts, veteran electric refrigeration salesman has been appointed manager.

Harry Alter, Majestic; Frank Johnson, Son & Crowen, Westinghouse; Wiswell Radio Co., Leonard; Lind Hardware Co., Servel; Sampson Electric Co., Williams Ice-O-Matic; Illinois Moulding Co., King Kold; Norge Corp., Norge; Kelvinator Corp., Kelvinator; and Zerozone Corp., Zerozone.

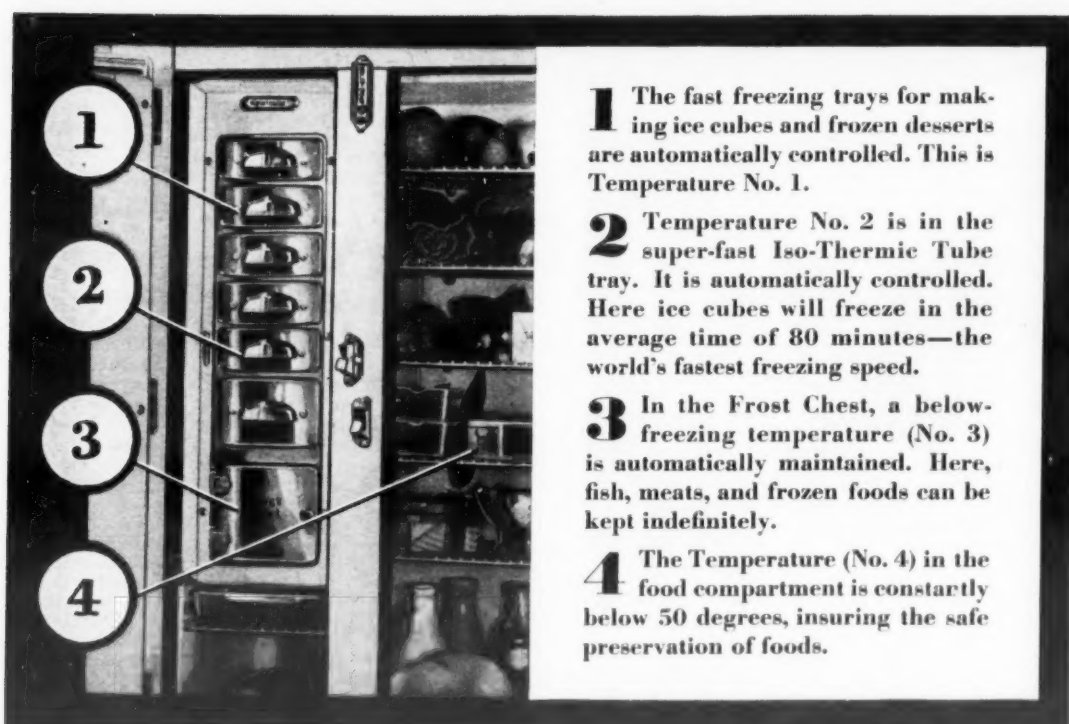


# Kelvinator

## ALONE is

# AUTOMATIC!

*A fact which gives the Kelvinator dealer a decided advantage over ALL competition*



**1** The fast freezing trays for making ice cubes and frozen desserts are automatically controlled. This is Temperature No. 1.

**2** Temperature No. 2 is in the super-fast Iso-Thermic Tube tray. It is automatically controlled. Here ice cubes will freeze in the average time of 80 minutes—the world's fastest freezing speed.

**3** In the Frost Chest, a below-freezing temperature (No. 3) is automatically maintained. Here, fish, meats, and frozen foods can be kept indefinitely.

**4** The Temperature (No. 4) in the food compartment is constantly below 50 degrees, insuring the safe preservation of foods.

without touching a thing. There are no levers to set. Nothing to forget. No danger of freezing the contents of the food compartment.

This feature alone—4 different temperatures, each *automatically* controlled makes Kelvinator the most satisfactory refrigerator to own. By the same token, it makes Kelvinator the *most salable*

**K**ELVINATOR is the *only* electric refrigerator that is truly automatic. In all other electric refrigerators, the different temperatures and freezing speeds are controlled manually.

In the Kelvinator Standard and De Luxe Models the temperatures are controlled *automatically*—without supervision—

electric refrigerator built, and this feature is but one of many equally outstanding and exclusive Kelvinator features.

Electric refrigeration dealers and dealers in other lines who are considering the electric refrigeration business are invited to write us. *Now is the time to come to Kelvinator!*

**KELVINATOR CORPORATION, 14245 PLYMOUTH ROAD, DETROIT, MICHIGAN**

Kelvinator of Canada, Ltd., London, Ontario

Kelvinator Limited, London, England



### 'MAGIC' G. E. WATER COOLER FEATURED AT FAIR

PAINESVILLE, Ohio—The General Electric "Magic Fountain," a pressure cooler operated by a photo-electric cell, proved one of the principal attractions at the Lake County fair, held here recently. The fountain, which operates only when a person stands before it, was part of the display of the Mizer Electric Co., General Electric dealer.



**Balsam-Wool**  
*Sealed Slabs*  
**✓ODORLESS**  
**SANITARY**  
*Completely satisfactory*  
*Refrigerator Insulation*

**WOOD CONVERSION COMPANY**  
Industrial Sales Offices:  
CHICAGO, 360 N. MICHIGAN AVE.  
New York, 3107 Chania Bldg.  
Detroit, 515 Stephenson Bldg.  
San Francisco, 149 California St.

### J. G. LEARNED NAMED GREAT LAKES LEADER

NEW YORK—John G. Learned, vice president of the Public Service Co. of Northern Illinois, has been appointed regional director for Great Lakes division of the Electric Refrigeration bureau of National Electric Light association.

Mr. Learned, who was formerly state director for Illinois, will succeed John F. Gilchrist.

Other changes which have occurred in the Electric Refrigeration bureau organization, are as follows:

C. E. Carter, vice president of the Danbury Gas & Electric Co., Danbury, Conn., has replaced Robert H. Knowlton of the Connecticut Light and Power Co., Hartford, Conn., as state director for Connecticut.

E. A. Lewis, of the Atlantic City Electric Co., Atlantic City, N. J., has replaced F. D. Pemberton, assistant general sales manager of the Public Service Electric & Gas Co., Newark, N. J., as state director for New Jersey.

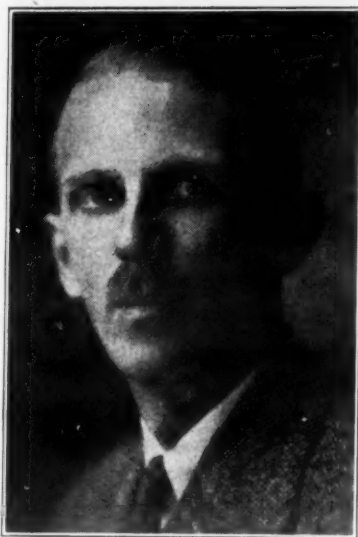
Felix H. Stone, assistant vice president in charge of sales of the Duquesne Light Co., Pittsburgh, has replaced George E. Whitwell, of the Philadelphia Electric Co., Philadelphia, as state director for Pennsylvania.

### 90 Models Displayed in Camden, N.J. Show

CAMDEN, N. J.—More than 90 models of electric refrigerators were shown in the fall refrigeration show sponsored by the local bureau. The exhibition was staged in the Public Service Co.

Three home economics consultants—a director of public health, hotel chef, and packers representative—demonstrated quick-frozen foods each day during the five-day show.

### Division Head



C. W. COYE  
Recently appointed sales manager  
of Gibson electric cabinet division.

### 9,897 REFRIGERATORS SOLD IN CALIFORNIA CAMPAIGN

SAN FRANCISCO—Nine thousand eight hundred and ninety-seven electric refrigerators were sold in a 75-day co-operative campaign which was staged by Pacific Gas and Electric Co. and 10 northern California distributors.

An average of 133 units daily was set in the drive against a quota of 100.

The drive was sponsored by the Pacific Gas and Electric Co. as a part of the national bureau campaign.

### BULLETIN DISCUSSES REFRIGERATION GAINS

NEW YORK—In a recent issue of the industries section of *Standard Trade and Securities*, published by Standard Statistics Co., the following comment was made on the progress in mechanical refrigeration:

"Mechanical refrigeration, from its start about a decade ago, has gained increasing consumer acceptance among the higher income classes of householders to whom price is not the all-important consideration.

#### Growth Rapid Since '26

"Growth since 1926, when distribution was first obtained on an important scale, has been rapid, and this trend remains uninterrupted this year, in spite of general trade inactivity.

"Thus far in 1931, between 700,000 and 800,000 household models are reported to have been sold, as compared with the distribution of 770,000 units for the full year 1930.

"Although the active spring and summer seasons usually are followed by pronounced dullness in successive quarters, the advertising and sales campaigns now under way promise greater than normal business this year.

#### Seek 1,000,000 Mark

"The National Electric Light Association is pushing electric refrigerator sales intensively, because of the additional steady load of current required to operate each machine marketed.

"Stimulated, therefore, both by the unsatisfied demand for good equipment on the part of the public, and by the united sales efforts of producers and of public utilities, it is expected that the goal of 1,000,000 household units set by the trade for 1931 will be closely approached.

"The commercial field for mechanical refrigeration likewise is becoming increasingly important, and full year 1931 statistics likely will reveal a marked gain over the 232,000 units sold in 1930.

#### Predict Further Growth

"Because there is an extensive unexploited field for iceless refrigeration, it is our opinion that the next several years will mark a period of further rapid growth for the industry.

"Approximately 3,750,000 homes are equipped with electric or gas types of machines, representing only about 19 per cent saturation of the potential market (as based on the number of wired and gas-supplied homes.) Sales appeal thus far has been largely to the higher-

### First in Field



M. R. KRADER  
First field representative for Liquid  
Cooler Co., manufacturer of Temp-  
rite water coolers.

income classes of people, and statistics clearly reveal that this field offers further substantial possibilities.

"An intangible, but nevertheless potent, factor pointing toward continued sales expansion is found in the fact that the average price level for refrigerators gradually is being lowered. Competition is likely to keep this trend downward, and the recent price cuts of 10 per cent to 20 per cent by some of the leading producers are indicative, in part, of producers' ability to reduce costs.

"Every recession of a few dollars in the retail price opens new sales territory among the lower income classes of people. Then, too, the anticipated passing of the current general trade recession should serve as an important sales stimulant, particularly in view of the liberality of instalment purchase plans.

"The near term profits possibilities in this field, moreover, are definitely satisfactory. The industry as a whole gives concrete assurance of establishing a new high record of aggregate income for the full year 1931, although narrowed profit margins brought about through price reductions will prevent expansion directly proportionate to the growth of unit sales.

#### Inroads in Ice Business

"Electric and gas refrigeration have made steady inroads into the household market for ice during the past five years. Until this year, the leading ice producers were conspicuously successful in counteracting these adverse influences by improved merchandising methods and more intensive cultivation of commercial, transportation and wage-earner requirements. Acquisitions and diversification into other lines, furthermore, have been helpful to the ice companies.

"It is our opinion, however, that the ice business has about reached its zenith and that competition from mechanical refrigeration will become increasingly severe over succeeding years.

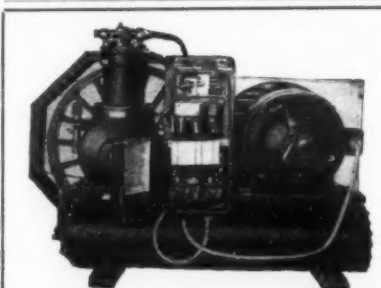
"While some of the large ice companies for a time may be able to hold their positions, especially in railroad transportation, we believe that the general trend of volume over the long term future will be downward.

"Notwithstanding abnormal temperatures in July and early August, sales and earnings this year are running moderately below the high levels of 1930. Spring weather was unseasonably cool and conditions in late August were not ideal for heavy consumption.

"The active sales season is practically past, and it is now quite clearly indicated that 1931 results will be somewhat below the satisfactory 1930 totals."

### HOUSEHOLD PRODUCTS PAY \$5,706,372 IN AUGUST

NEW YORK — Dividends paid by household product companies in August amounted to \$5,706,372, according to the Standard Statistics Co.



### DISTRIBUTOR OPPORTUNITY COMMERCIAL

—and domestic equipment. Full range of sizes. Highest grade. Nationally known. Widely used. Excellent record. Available with or without trademark.

MERCHANT & EVANS CO.  
Philadelphia Est. 1866

# NORGE

## DEMONSTRATES IN THE HOME WITHOUT A REFRIGERATOR . . .

The Rollator, Norge refrigerating mechanism, is so compact that a salesman can carry one in his hand from home to home. It is so simple (with only three moving parts) that any housewife can understand its operation and the sturdiness that makes it almost everlasting.

Norge and Norge alone can give the extra cooling power of Rollator Refrigeration. Norge and Norge alone can be home demonstrated with a mechanism that hardly fills your two hands. Norge and Norge alone offers the service freedom of Rollator Refrigeration.

This year has seen Norge leap into the foreground of public popularity. Norge gains are amazing. Norge Dealers are prospering. The same advantages that have proved profitable for present Norge Dealers are open to responsible merchants in many localities. Your inquiry will bring a prompt response.

NORGE CORPORATION, 658 East Woodbridge Street, Detroit, Mich.

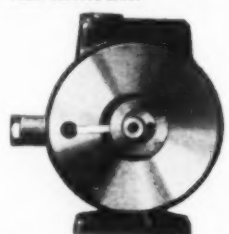
IN CANADA, NORGE CORPORATION OF CANADA, Ltd.  
235 CARLAW AVENUE TORONTO, ONT., CANADA

# NORGE

ROLLATOR REFRIGERATION

#### Rollator Refrigeration

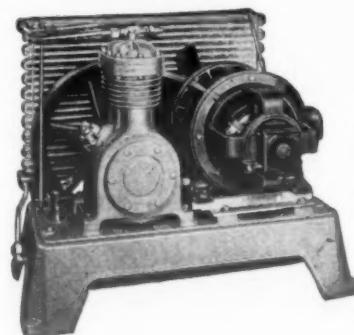
The Norge Rollator is powerful, compact and simple. With only three moving parts, it is just a roller that slowly rolls in a permanent bath of protective oil. There is actually no metal to metal contact. How can it be other than service free?



THE ROLLATOR

Norge Corporation is a division of Borg-Warner Corporation, one of the world's largest makers of automotive parts, including free wheeling.

**KULAIR**  
Simplicity, quality,  
efficiency and capacity  
unequaled



A size for every use

**Methyl Chloride**  
or  
**Sulphur Dioxide**

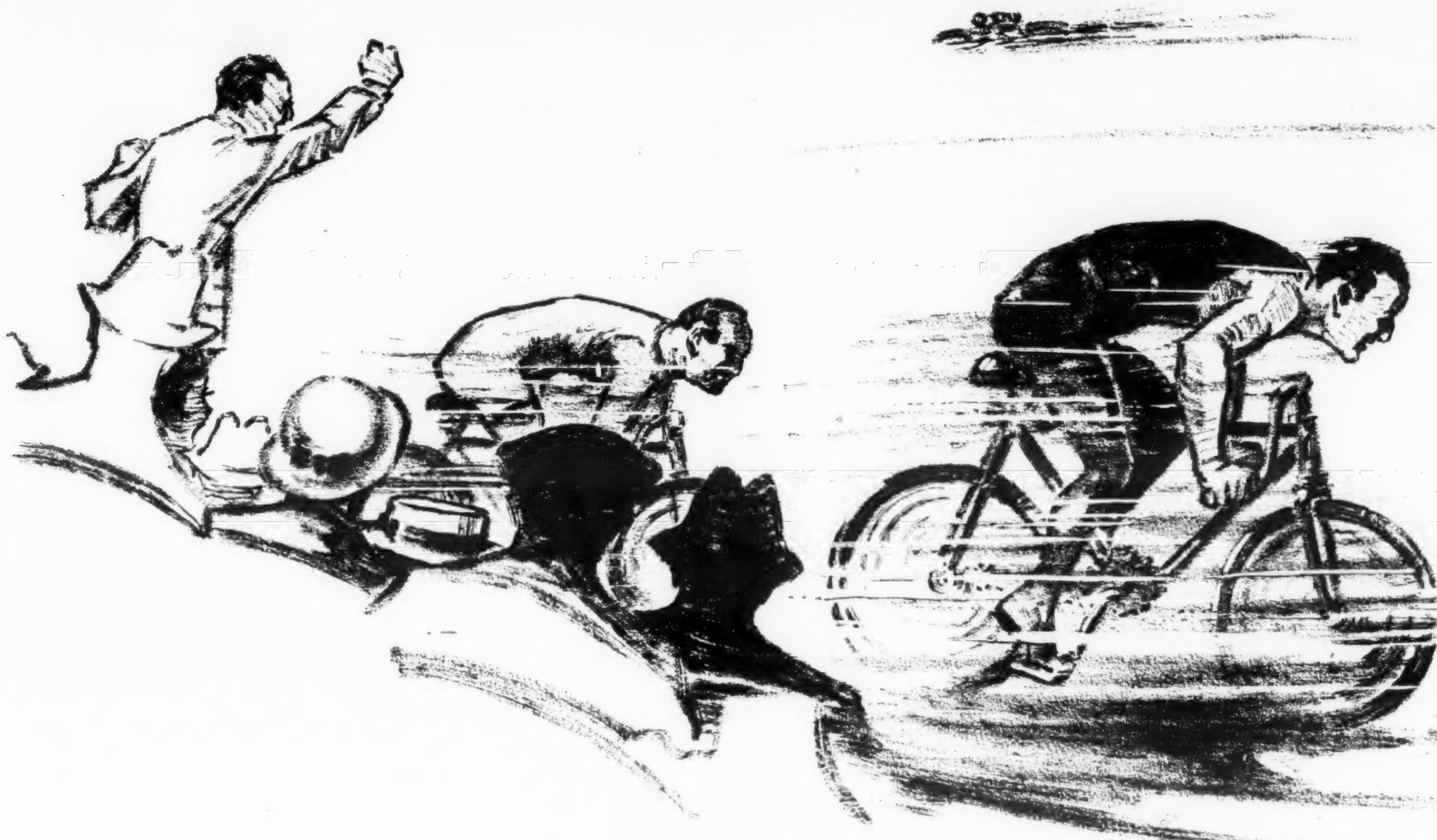
**Air or Water Cooled  
CONDENSING  
UNITS**

95 to 2500 Lbs.

The  
**Important Enhancement**  
of Dealer and Retail customer confidence in Kulair clientele  
Allowing Distribution and Sales  
UNDER PRIVATE BRANDS  
will benefit  
your distributing establishment

**KULAIR CORPORATION**  
PHILADELPHIA, PA.





# It's as easy to keep abreast as to stay a lap behind

Most gruelling of races, the endless circling of bicycles over the boards for days on end calls for infinite fortitude, strength and endurance. What an ordeal it is to regain those lost laps! Yet it takes as much straining on pedals and handle bars to hold a place behind as to stay even with the leaders.

Not for days, but for months and years the race for refrigerator business goes on. Manufacturers who start with every possible advantage can stay abreast, but woe to the ones who have failure showing up through any mediocre part. It drops them laps behind. But those who are thinking ahead invariably specify Dry-Zero Pliable Slab, for they know that then there will never be failure in the insulation.

In the industry, Dry-Zero is accepted as the insulation standard. Refrigeration engineers have set up the important points on which insulation should be judged, and Dry-Zero is obviously superior:

#### THERMAL EFFICIENCY

#### LIFE

#### EFFECTS OF MOISTURE

#### FACTORY APPLICATION

#### ODOR

Dry-Zero has the highest thermal efficiency; it will outlast the refrigerator; the Dry-Zero fibre is so resistant to moisture that it is used in U. S. Navy life belts; its sealing flange and made-to-size measurements provide instant and perfect installation with sufficient resilience to counteract assembly irregularities; it can never absorb or give off odors.

Dry-Zero has been thoroughly tested in practical use in thousands of domestic refrigerators, railroad refrigerator cars and refrigerated motor trucks. Its actual use has substantiated the evidence of tests by such authorities as the U. S. Bureau of Standards, and various national institutes, showing it to be the most efficient commercial insulant known.

Dry-Zero is being used by more and more manufacturers who have come to realize that to keep abreast of the refrigerator market every part must be dependable. This means that insulation must be Dry-Zero.

**DRY-ZERO CORPORATION**  
Merchandise Mart - Chicago, Illinois  
Canadian Office - 465 Parliament Street, Toronto

THE MOST EFFICIENT COMMERCIAL INSULANT KNOWN

**DRY-ZERO**



## MERCHANDISING SECTION ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

Published Every Week by

BUSINESS NEWS PUBLISHING CO.

Also publishers of REFRIGERATED FOOD NEWS (monthly) and  
the REFRIGERATION DIRECTORY (annual)

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### Editorial Aims of the News

To encourage the development of the art.

To promote ethical practices in the business.

To foster friendly relations throughout the industry.

To provide a clearing house for new methods and ideas.

To broadcast the technical, commercial and personal news of the field.

### Conventions

PERIODICALLY, executives who must O. K. heavy bills run up during a sales convention begin to wonder if these gatherings of sales organizations from near and distant territories are worth what they cost. Undoubtedly they are expensive. A great many electric refrigerators must be sold to defray the expenses of three or four days of conviviality.

Those who remember only morning-after-the-night-before headaches, wheezy quartets, and fattening banquets may believe they have considerable justification for their misgivings about the value of conventions, and for their belief that the price is marked up too high.

An actual check-up on the results of one of these conclaves, however, might tell an entirely different story. True, many of those who attend will probably have a record composed entirely of nights of gladness and days of repentance.

But the great majority of the registrants can usually show notebooks crammed with facts and ideas, can report muddled situations cleared up, and can express pleasure over new friends made and satisfaction at the results of business confabs they have had with these brothers-in-the-bonds.

### Business-like Affairs

Electric refrigeration sales conventions of today are very business-like affairs. The programs are definite, clean-cut, and run on a schedule. Even playtimes are regulated by the hour.

And the men who arrange the order of events see to it that the minutes are occupied by talks and demonstrations which will actually help dealers and distributors make more sales and run a better business.

A successful sales convention can almost be reduced to a formula. First of all, it is generally considered essential to have a model sales presentation.

On the lighted stage, some smooth-talking member of the home office force, or possibly a star salesman from the field, sells an electric refrigerator to a prospect. Stock objections are parried neatly, sales kits and sales tools are used properly, and the whole presentation is organized in the manner considered most effective by the sales heads of the organization.

Nor would a sales convention be complete without a delineation of the product. Where possible, the conventioners are taken on an inspection tour of the factory.

### Studying the Product

These trips are more than just rubberneck jaunts; they are lengthy scrutinizations by means of which dealers and salesmen get detailed pictures of the machine they are selling, of what it is made, and how it is put together.

If an inspection trip isn't possible, there are usually cutaway models attended or demonstrated by an engineer who can explain the entire mechanism down to the last screw.

The advertising department takes charge of a goodly portion of convention programs to present previews of its coming national campaign, to sell its promotional material to dealers and distributors who haven't used as much of it as headquarters would like, and to straighten out tangles which have arisen in coordinating and handling the details of local advertising campaigns.

Most important are the discussions of discounts and prices. These often take the form of individual conferences between a dealer or a distributor and the head of the organization. Sometimes small groups meet to decide questions of price and price-cutting, of discounts and terms.

Distributors and dealers, of course, usually want longer discounts. High prices established by national advertising, combined with long discounts, afford an opportunity to cut prices. And price advantage sometimes seems all-important to weak selling organizations.

It is sometimes easier to come to an agreement on the difficult questions of discounts and prices with a large group of distributors and dealers at one time than it is to discuss the matter with scattered individuals over a period of time. Conventions help the man who is battling it out on a small local front to acquire a national viewpoint and perspective.

### Flying Start

Plans for coming months are usually outlined, and new models introduced. Thus an entire organization can be sent off to a flying start.

It's easy to stir up enthusiasm with the presentation of a few new models. And new ideas which are expected to place everybody one up on all competition generally are the signal for vociferous outbursts of cheering.

Added to these are the master spellbinders from the home office, and the inspirational talks by department heads and the president of the company, whose presence alone is usually sufficient to make the dealers and salesmen feel they have received their money's worth.

In several of the leading refrigeration organizations, distributors are given a voice in the establishment of policies. Hence, distributors' gatherings can be very democratic affairs in which matters of vital importance are decided.

Whereas distributors may get together and shape national plans, dealers at conventions spend much time talking informally and checking their own ideas against those of dealers from other sections of the country.

### Extemporaneous Conferences

These little extemporaneous conferences may result in one dealer adopting a new salesman's compensation plan, another deciding to do more promotional work, a third concluding that the week's-trial-sales plan is worth trying, and a fourth making up his mind to give the quarter-a-day scheme a whirl. And a score of others will go home more firmly convinced than ever that the program on which they made money in 1931 will be the best to follow in 1932.

Conventions help the headquarters staff sell its ideas to the territorial sales organization.

Conventions offer a means of presenting visualizations of successful selling methods to dealers and salesmen.

Conventions can aid sales forces in acquiring a better understanding of the product they are merchandising.

Conventions assist the advertising and sales promotion department in securing effective cooperation with their ideas and campaigns.

Conventions stir up enthusiasm, inspire individuals with loyalty to the organization, respect for its product, and homage to its leaders.

Conventions help give men perspective and a national viewpoint, thereby helping adjust differences of opinion on discounts and prices.

And finally, conventions afford an opportunity for the comparing of notes on successful methods and for the exchange of profitable ideas.

Best proof of all that conventions are worth their salt is that the leading organizations in the refrigeration industry have them, and have them often.

## Letters from Readers

### Dr. Allison

Electric Refrigeration Bureau  
National Electric Light Association  
470 Lexington Ave., New York City.

Editor:  
I want to congratulate the ELECTRIC REFRIGERATION NEWS on getting out a mighty fine paper.

G. W. ALLISON,  
Refrigeration Manager.

### Ziegfeld Kicks the Public Again

Frigidaire Corp.  
Dayton, Ohio.

Sept. 24, 1931.

Editor:  
Mr. Mutchner has sent me your letter of Sept. 22 dealing with the subject of the GMC-Frigidaire truck, because of its reference to the Ziegfeld advertisement that his theater is the only theater cooled by Frigid Air.

I might say that we appreciate very much your interest in calling this to our attention. The Ziegfeld theater is not cooled by Frigidaire equipment and we therefore regard the Ziegfeld advertisement as misleading and in violation of our trade name rights.

For your information I might say that we have already taken this matter up with the Ziegfeld theater and we hope to clear up the situation in an amicable manner.

J. RALPH FEHR,  
Patent Department.

### New England Reports Abundant

The S. M. Howes Co.  
511 Medford St.  
Boston, Mass.

Sept. 29, 1931.

Editor:  
May I express my appreciation and approval of ELECTRIC REFRIGERATION NEWS and, in particular, my interest in the Sept. 23 issue.

I find your paper a most excellent method of keeping in touch with the activities of my many friends in New England and the truly inspirational value of your occasional biographical sketches of refrigeration's leaders are noteworthy.

Although Brother Barr may be in Dutch down in Connecticut, your reports of New England outlets are abundant and very welcome.

JOSEPH LEWIS HALLETT,  
Manager, Freezortray Dept.

### Finest in Field

Grand Rapids Store Equipment Corp.  
Grand Rapids, Mich.

Editor:  
Mr. David W. Brundage is one of our new salesmen in the St. Louis territory, working exclusively on our new line of refrigerated equipment. At our request he is equipping himself with the finest newspaper in the refrigeration field today, ELECTRIC REFRIGERATION NEWS.

GALE M. BARTON,  
Refrigeration Dept.

### Boston, the Pioneer

General Electric Co.  
Cleveland, Ohio.

Sept. 29, 1931.

Editor:  
I just want to tell you how thoroughly I enjoyed your story on Boston in the Sept. 23 issue of the NEWS. There is one point I want to make and I do not think that it is very well known in the refrigeration industry, and that is the fact that refrigeration really got its start in this country in the New England states, and in particular around Boston.

As far back as 1805 the first commercial shipment of ice that was ever made was made from Boston to the West Indies, to stay the ravages of Yellow Fever.

We might, therefore, give Boston credit for pioneering refrigeration, as well as the innumerable other things that they have also pioneered in this country.

F. M. CORLISS,  
Product Division.

### Interesting Paper

Frigidaire Electric Refrigeration  
Riverside, Calif.

Editor:  
Wish to congratulate you on a very interesting paper.  
Refrigeration Sales Corp.

### Complete, Practical

Harvey, Ill.

Editor:  
As a subscriber to your ELECTRIC REFRIGERATION NEWS I would like to take this opportunity to congratulate you on publishing a most complete and practical, useful newspaper.

LEONARD BARK.

### This Man Wants to Buy Something

The White House  
Worcester Park, Surrey, England.  
Sept. 12, 1931.

Editor:  
I would like to call attention to the discourtesy of some of your advertisers in not replying to enquiries from England.

Even if those people or firms do not want to export or to send particulars, they should at least reply.

In some cases they get their export agents (who do not seem familiar with their products) to reply in first instance, with the result that no interest is aroused.

May I suggest that the firms themselves reply direct and give sufficient data and information to interest their prospects?

J. B. SANDERS,  
Member A. S. R. E.

### On the Other Hand

Buffalo, N. Y.

Editor:  
I have been working as an independent service man since last Sept. (1930), and have had very pleasant business dealings with some of your advertisers.

JOHN J. SULLIVAN.

### The Expansion Valve

Lord and Thomas & Logan  
New York

Sept. 23, 1931.

Editor:  
Allow me to compliment you upon the new weekly edition of the NEWS. In getting such an undertaking started it is lucky for the paper that it has such a delightfully expansive editor. I like the "Expansion Valve" as well as anything else in the paper, and the more space it gets, the better I'll like it.

COLIN G. JAMESON.

### Priceless Story

Ayres-Lyon Corp.  
Boston, Mass.

Sept. 30, 1931.

Editor:  
That full-page write-up you gave Ed Terhune is priceless and we want to secure 400 reprints of Expansion Valve page in Merchandising Section of ELECTRIC REFRIGERATION NEWS of Sept. 23. Please let me know if you can accommodate us, as we will put on a direct mail campaign among prospective Copeland dealers in New England, in which your full-page write-up on Terhune will be featured. Please wire reply giving date you can furnish reprints.

W. LYON.

### Association Island

General Electric Co.  
Electric Refrigeration Department  
Cleveland, Ohio.

Editor:  
"Twas a wonderful story about Association Island.

H. O. H. QUINN,  
Cleveland, Ohio.

### Very Helpful

Houlberg Distributing Corp.  
5 Clinton Square, Albany, N. Y.

Editor:  
"We are subscribers to your paper and find it very helpful."

H. G. HOULBERG,  
President.

### Boston Again

Appliance Engineering Co.  
Boston, Mass.

Sept. 30, 1931.

Editor:  
Your article on the city of Boston was indeed very interesting and I got quite a kick out of your description of the Boston Transcript.

E. A. TERHUNE,  
President.

### Likes Weekly Issues

St. Louis, Mo.

Editor:  
I am very well satisfied with your paper. I am also glad to see it published every week, as I look forward to the time it arrives.

GUY POHLMAN.

### More News About

I would like to see more news about: Ice-O-Matic refrigeration and not so much G. E.—The Foster Auto Supply Co., Denver, Colo.

General Electric commercial refrigeration.—J. R. PATON, San Diego, Calif.



# FOR GREATER NET EARNINGS SELL the Westinghouse Refrigerator

## ... A Proved Success

One of the most important reasons why so many retailers have selected the new Westinghouse Refrigerator franchise is the greater net earnings it offers which are made possible by exceptional trouble-free performance.

Features which have given Westinghouse its enviable record include the well known Westinghouse forced draft, hermetically sealed Quiet Mechanism concealed in the flat, usable Buffet Top, the Arm-High 7-Point Temperature Selector and the Automatic Built-in Watchman. This feature means that the Westinghouse Refrigerator will not only stop, but will start up automatically when unusual conditions interrupt operation. It is an exclusive contribution to Westinghouse trouble-free performance.

### NEW POPULAR-PRICED MODELS ASSURE NEW SALES

To make the Westinghouse Refrigerator available to additional thousands of people—many right in your locality—Westinghouse recently announced two new models. These latest models—the WL65 with 7.28 cubic foot capacity retails for only \$240 f. o. b. factory. Two other models are offered at even lower list prices. A companion, Model WL85, has 8.98 cubic foot capacity and retails for only \$340 f. o. b. factory. Both units have all basic Westinghouse "Completely Balanced" features. Cabinets are of steel with sanitary porcelain linings.

With the introduction of these new popular-priced models, retailers are able to meet every home refrigeration demand with a Westinghouse Refrigerator that every home can afford. Seldom has the electrical field been offered such a strong potential profit maker backed by a great, aggressive national advertising program.

### INCREASED NATIONAL ADVERTISING

Westinghouse national advertising which is assisting many retailers in the breaking of their 1931 quotas has been substantially increased. Double spreads and pages in color in leading national publications will continue to tell the Westinghouse story to ever-increasing markets. More than that! Westinghouse also stands back of its retailers with descriptive merchandising literature, cooperative newspaper advertising, window

TO RIGHT—Model WL65—Finishes: Exterior lacquer, interior porcelain; Over-all dimensions: width 31 $\frac{7}{8}$  in., depth 22 in., height 59 $\frac{7}{8}$  in.; shelf area 11.40 square feet; usable interior volume 7.28 cubic feet; ice making capacity 96 large cubes—11 pounds. Has hermetically sealed, trouble-free Quiet Mechanism; conveniently flat, usable Buffet Top; Arm-high 7-point Temperature Selector; Automatic Built-in Watchman and other Westinghouse "Completely Balanced" features.



TO LEFT—Model WL85—Finishes: Exterior lacquer, interior porcelain; Over-all dimensions: width 38 $\frac{7}{8}$  in., depth 22 $\frac{1}{2}$  in., height 59 $\frac{7}{8}$  in.; shelf area 14.1 square feet; usable interior volume 8.98 cubic feet; ice making capacity 96 large cubes—11 pounds. Has hermetically sealed, trouble-free Quiet Mechanism; conveniently flat, usable Buffet Top; Arm-High 7-point Temperature Selector; Automatic Built-in Watchman and other Westinghouse "Completely Balanced" features.

displays, a complete mail service and proved merchandising counsel.

### PLAN FOR FUTURE PROFITS—WRITE FOR DETAILS OF YOUR OPPORTUNITY!

A limited number of Westinghouse Refrigerator franchises are still available. Find out if there is one in your territory. A post card will bring you all the facts of the phenomenal Westinghouse success and show you how to enjoy the ever-increasing profits with the new Westinghouse Refrigerator. Westinghouse Electric and Manufacturing Co., Merchandising Department, Mansfield, Ohio.

WESTINGHOUSE ELECTRIC  
AND MANUFACTURING COMPANY  
Merchandising Department, Mansfield, Ohio  
Please send me details of the WESTINGHOUSE  
Refrigerator Franchise.

Name.....

Address.....

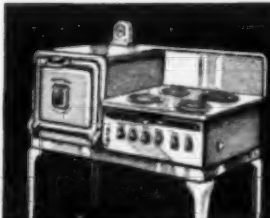


# Westinghouse Refrigerator

The Name "WESTINGHOUSE" is your guarantee

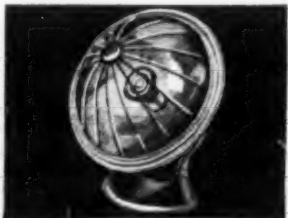
Westinghouse Flavor Zone Electric Ranges in sizes and styles for every home.

These ranges offer the housewife cooking equipment modern as the minute.



A breath of summer in mid-winter! One reason why this new Westinghouse Cozy Glow is a popular seller.

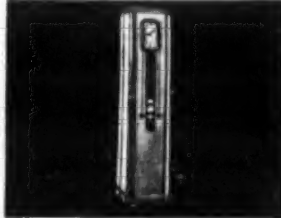
It is an ideal, portable heat supply for frosty mornings in bathroom or nursery.



What woman does not want a Westinghouse Master-Matic Iron? The country's leading iron and a product of Westinghouse engineering ability.



The smart Westinghouse Columaire Jr. De Luxe. It is of excellent design and finish. Harmonizes well with other furnishings.

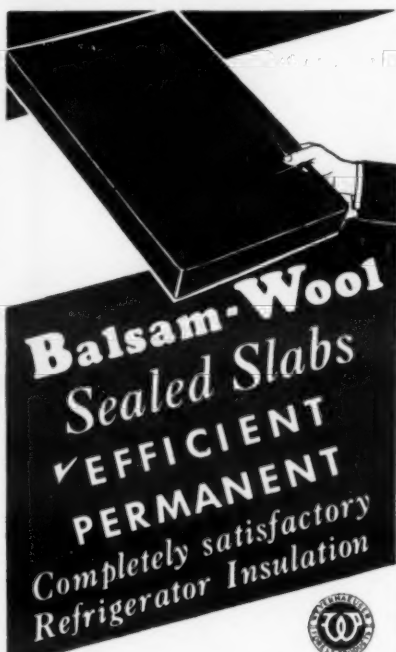


The Westinghouse line of electrical equipment for the home meets every need.



### CONNECTICUT DISTRIBUTOR OPENS SALES CAMPAIGN

HARTFORD, Conn.—Elmer C. Newton was toastmaster at the banquet opening the fall sales campaign of the Newton-Parsons Co., General Electric distributor for Hartford County, which was staged in the Hotel Bond recently. About 75 persons, representing Hartford headquarters and branches, attended.



### WOOD CONVERSION COMPANY

Industrial Sales Offices:  
CHICAGO, 360 N. MICHIGAN AVE.  
New York, 3107 Chanin Bldg.  
Detroit, 515 Stephenson Bldg.  
San Francisco, 149 California St.

### WESTINGHOUSE PICKS NEW COMPTROLLER

EAST PITTSBURGH—Appointment of Roscoe Seybold as comptroller of the Westinghouse Electric & Mfg. Co. has been announced by Chairman A. W. Robertson.

Mr. Seybold, who advances to the position of comptroller from the post of assistant to the president, has been continuously in the service of the Westinghouse company for 24 years. A native of Rockville, Ind., and a graduate of Purdue university, he joined the Westinghouse organization in 1907 as a graduate student.

After completing this training course, he entered the price department, where he remained until 1926. From 1909 until 1922 he was manager of the price section of the power and railway headquarters sales departments. From 1922 until 1926 he served in an executive capacity with the general sales manager. He has been assistant to President F. A. Merrick since 1926.

### FRIGIDAIRE BRANCH NAMES COLUMBUS, O., DEALERS

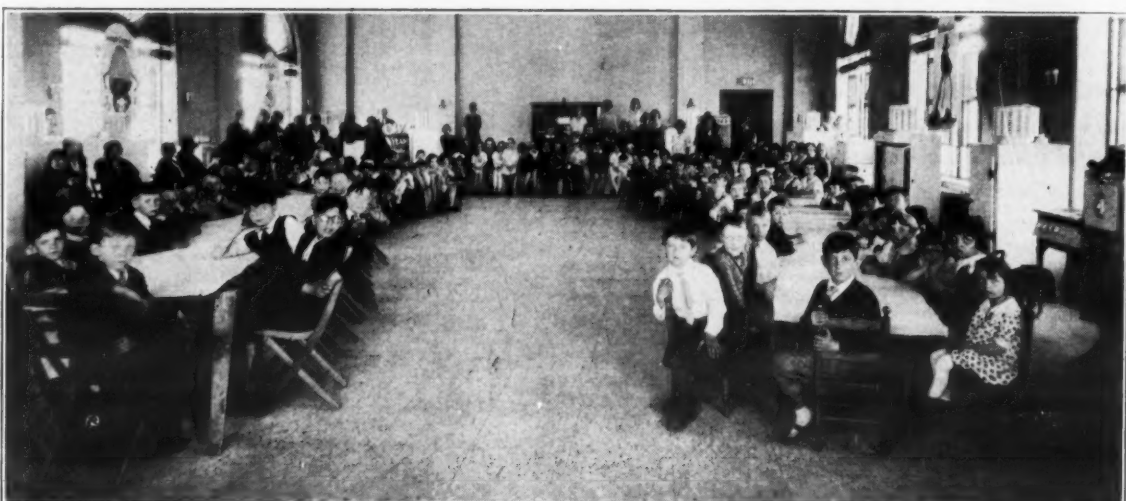
COLUMBUS, Ohio—Frigidaire Sales Corp. branch has built up a dealer organization with the recent addition of the following:

Columbus Railway Power & Light Co., F. & R. Lazarus & Co., F. G. & A. Howard Co., C. J. Linville, Charles T. Naddy Co., S. J. Wolford & Sons Co., Grover C. Stretch, Harry Fullen, Westgate Electric Co., and F. W. Dickinson Hardware Co.

### ICE-O-MATIC DEALER

BIRMINGHAM, Ala.—(UTPS)—The Auto Service Co., Ice-O-Matic dealer, has moved from 1701 Second Ave., North, to 1920 Ave. D.

### Knights of the White Castle



A Knight in the White Castle party recently drew 193 children and 45 mothers to the display rooms of Paul Smith's Electric Co., dealer at Saranac Lake, N. Y., and 80 to another children's party was held in the store of the Lake Placid Electric Co. at Lake Placid, G. E. dealers. Programs were arranged for the children and mothers by Miss Ruby Stevens and Miss Harriet Ellis, kindergarten teachers in Saranac Lake schools.

### STARR FREEZE PUZZLE CONTEST BRINGS 25 SALES

By Jack Wooten

MONTGOMERY, Ala.—Jesse French Sons, Inc., representatives of the Starr-Freeze electric refrigerator, has just concluded a puzzle contest which was directly responsible for the sale of 25 refrigerators.

The contest, known as the "15" puzzle, was used not only to sell this year's models but to acquaint the public with the fact that the company had taken over the Starr-Freeze. According to W. S. Yougene, Jr., sales manager of the company, the contest was highly successful in that over 2,500 solutions to the problem presented in the "15" puzzle were turned in.

The contest was purposely made very simple so that a large number of people would compete. A square containing nine blocks, with the figure 5 in the center, made up the puzzle. The contestants had to place figures from one to ten in the other squares so that the total would be 15 anyway it was added, perpendicularly, diagonally or horizontally. Different numbers had to be used in every square. Contestants were adjudged by their neatness, correctness and originality.

The puzzle was presented to the public through newspaper advertising. Radio advertising also played a part in creating interest, the contest being announced at the regular 30 minute per week program sponsored by Jesse French Sons, Inc. Five prizes were given to winning contestants. First prize was an electric refrigerator, second prize, a radio; third prize, portable Victrola; fourth prize, violin, and fifth prize, a miniature golf set.

Every contestant who was not suc-

### A Profitable Complaint

BROOKLYN, N. Y.—Converting a complaint into an Electrolux sale is no easy trick, but it was done by an alert and helpful employee at the Newtown branch of the Brooklyn Union Gas Co.

A woman came in to protest that her gas bill was too high. Otto Zoller, the contract clerk who received her complaint, adjusted the matter and then proceeded to tell the woman about the refrigerator.

Before she left she had purchased a Hostess model Electrolux.

Successful in winning a major prize was given a credit check. This check entitled the holder to trade in an old refrigerator at a price of \$50, or if they did not have a used ice box, it was good for whatever amount the salesman felt could be allowed on the purchase of an electric refrigerator. As much as \$40 was allowed on some of the checks.

If the contestant did not desire a refrigerator, then the check was exchangeable for a piano or a radio check. This fact was disclosed in a letter sent out to every person sending in a solution to the puzzle. Many came to the store to take advantage of the offer. Those who did not entertain the idea of cashing in on the credit were mailed a second letter in which a 10 days' extension of time was allowed.

"We were more than pleased with the reception we received from the contest," declared Mr. Yougene. "We not only sold over 25 refrigerators as a direct result of it, but we succeeded in getting people into our store whom we would not have attracted otherwise."

"Introducing the new refrigerator would have been a difficult task had we not devised some means of getting its name before the public. We felt that the best method of acquainting our friends with Starr-Freeze was to give them something for nothing, for, after all, the more you give for nothing, the more you get back. That is psychology."

There are other psychological merchandise methods employed by the Montgomery dealer. In the first place, every salesman is put on his own mettle and given a right to think and act for himself.

Keeping in touch is another habit of Jesse French Sons. Every day the company receives from the chamber of commerce a list of new residents in Montgomery, together with the information as to how long they will remain in the city, whether they have moved into a furnished or unfurnished house, etc.

These people are immediately visited by a contact man driving a midget automobile. He does not go to sell, he goes to see if he can be of service.

### 14 VERMONT CITIES BUY 2,398 UNITS UP TO OCT. 1

BURLINGTON, Vt.—A recent survey of electric refrigerator sales in 14 cities and villages in Vermont by the Vermont Electric Refrigeration bureau, shows a total of 2,398 individual sales up to Oct. 1, 1931.

A large number of agencies in other communities have not reported as yet and it is believed that the total sales for the year of 1931 will be approximately 5,000.

The bureau report states that the value of those sales reported to date is in excess of \$432,000. Sales were reported by agencies dealing in the following makes: Copeland, Frigidaire, General Electric, Kelvinator, Majestic, Mayflower, Mohawk, Norge and Westinghouse.

According to the survey, a large number of the sales included in the report were made in Burlington, although sales have been excellent in the rural districts.

Sales of commercial units to dairy farms were reported as increased over the same period in 1930.

### POUGHKEEPSIE ELECTROLUX STAFF HOST AT DINNER

POUGHKEEPSIE, N. Y.—The local sales organization of Electrolux, Inc., entertained the various members of the sales organization of the Mid-Hudson division of the company at a dinner at the Hotel Campbell which was attended by representatives from Newburgh, Cornwall, Middletown, and Rhinebeck.

During the dinner, F. J. Grace of Cornwall was presented with the emblem of the company's honor roll, a gold elephant, for high production for the month of August.

R. C. Randolph, divisional manager of New York City, was guest of honor and principal speaker.

### FRIGIDAIRE BOWLERS LEAD SEATTLE LEAGUE

SEATTLE—Frigidaire bowlers in Seattle have taken early leadership in the Independent Bowling league. They won the first six games. The Frigidaires are high team for 30 frames, with 2,681 pins, and also for the highest 10 frames, with 954 pins.

### WORCESTER APARTMENTS BUY 24 G. E. UNITS

WORCESTER, Mass.—Boynston apartments have been equipped with General Electric refrigerators. The installation, which includes 14 SS-42 and 10 SS-62 models, was made by Coghlin, Inc., local General Electric dealer.

### FILTRINE FILTERS for ELECTRIC WATER COOLERS

GUARANTEED  
FILTRINE MFG. CO.  
49 Lexington Ave. - Brooklyn, N. Y.  
Manufacturers of filters and coolers in all sizes.

### THE IMITATION FOOD PRODUCTS CO.

107 Lawrence St.  
Brooklyn, N. Y.

Entering the Eighth Year of successful  
business

Ask for catalog of January, 1931

**O**NCE more Universal Cooler Corporation closes its most successful fiscal year. Nine years of sound, conservative growth have put Universal Coolers in the front rank of refrigeration equipment. We begin our 1932 efforts with the utmost confidence in the future of the refrigeration business in general and Universal Cooler Corporation in particular.

### Universal Cooler Corp.

Detroit, Mich. - - Windsor, Ontario



## ELECTROLUX ISSUES PLAN 'C' FOR SALES

EVANSVILLE, Ind.—In a recent publication, Electrolux Refrigerator Sales, Inc., announced plan "C" as a means of boosting fall and winter sales of Electrolux.

Four times as much energy as used in the summer period should be used by the dealer and salesmen to promote winter sales, according to the plan. The booklet says "four times as many Electrolux should be on the floor, four times as many calls for the men, four times as much energy in their talk, and four times as much thought and encouragement to the salesmen from their manager."

The suggestion is made that each salesman submit a list of 200 "live" prospects to the sales manager each month and that prizes be awarded for the best results. This is followed up by promotional mailings at the rate of 10 per day and the mailings are followed up by calls by salesmen.

Under plan "C," dealers are urged to use the "double duty" dollar plan in which the prospect's down payment is matched by an equal amount given by the dealer.

Use may also be made of "A Lucky 7 Sale" which allows \$7 to any employee for a lead that was sold and offering terms of \$7 allowance, \$7 down, 17 months to pay, and adjusting the sales price to include the figure 7.

An interest-building stunt for salesmen known as the "dice plan" calls for a sales meeting each morning at which the men making a sale the previous day are allowed three rolls of the dice and the man making no sales gets one roll. The total points are scored each day and the winner at the end of the contest receives a prize.

## 20,000 Attend Show At Portland, Me.

PORTLAND, Me.—More than 20,000 persons attended the first electric refrigerator show ever held in Portland, which was conducted in the City Hall Auditorium from Sept. 14 to 19 under the auspices of the Portland Electric Refrigeration Bureau.

A local newspaper cooperated with the bureau in sponsoring the show, which was under the personal direction of Jack Smith of Portland. Guy G. Smith of Portland, secretary of the Portland bureau and advertising manager of the Cumberland County Light & Power Co., presided as master of ceremonies and presented an electric refrigerator as an attendance prize each evening.

The following firms are members of the Portland bureau: Cumberland County Power & Light Co., General Electric and Kelvinator dealer; Cressey and Allen, Westinghouse dealer; Gould-Farmer Co., General Electric distributor; F. D. Pitts Co., Majestic distributor; E. S. Boulos Co., Majestic dealer; L. W. Cleveland Co., Norge dealer; Ballard Oil and Equipment Co. of Maine, Copeland dealer.

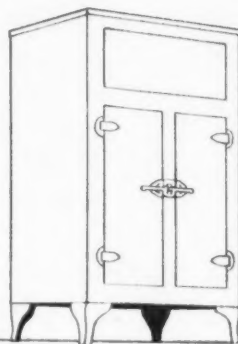
Other firms having displays were Maine Music Co., Servel dealer; Stern & Co., Inc. of Maine, Williams Ice-O-Matic distributor; T. F. Foss and Sons, Ice-O-Matic dealer; James Bailey Co., Mohawk dealer; Talbot, Brooks and Ayer, Wayne dealer; Oren Hooper's Sons, Apex dealer.

Other officers of the Portland Bureau are Roy E. Holden, sales manager of the Cumberland County Light & Power Co., chairman, and Kenneth C. Allen, refrigeration manager of Cressey and Allen, treasurer.

### Export of Refrigerators

June Shipments Reported by the Bureau of Foreign and Domestic Commerce

	Electric Household Refrigerators		Electric Commercial Refrigerators Up to 1 Ton		Parts for Electric Refrigerators	
	Number	Value	Number	Value	Number	Value
Austria .....	33	\$ 2,567	21	\$ 2,123	2	\$ 2,788
Belgium .....	443	43,530	126	14,815	9	9,225
Czechoslovakia .....	95	4,852	14	1,241	7	7,417
Denmark .....	121	9,975	72	8,736	10	10,829
Finland .....	10	1,020	...	...	...	...
France .....	244	23,859	240	31,101	30	30,716
Germany .....	81	6,875	6	720	10	10,924
Greece .....	16	1,024	12	2,160	1	1,997
Hungary .....	9	772	2	387	4	437
Irish Free State .....	...	...	6	751	1	1,059
Italy .....	78	7,181	64	7,428	9	9,090
Netherlands .....	34	4,453	27	3,212	5	5,302
Norway .....	75	7,553	5	569	2	2,583
Poland and Danzig .....	...	...	3	470	1	1,001
Portugal .....	19	3,104	...	...	...	216
Rumania .....	6	538	...	...	...	1,196
Soviet Russia in Europe .....	2	336	...	...	...	...
Spain .....	46	6,479	58	8,335	3	3,954
Sweden .....	180	14,413	38	4,296	12	12,387
Switzerland .....	234	20,726	69	8,492	11	11,212
United Kingdom .....	582	70,311	196	17,666	37	37,634
Yugoslavia and Albania .....	32	1,975	...	...	2	2,469
Canada .....	2,123	232,774	353	54,753	72	72,230
Costa Rica .....	9	2,057	...	...	13	13
Guatemala .....	4	633	...	...	...	286
Honduras .....	3	636	...	...	...	264
Panama .....	79	12,647	11	1,899	2	2,097
Salvador .....	7	1,367	1	301	...	648
Mexico .....	87	14,331	6	3,087	1	1,221
Newfoundland and Labrador .....	11	1,235	3	809	...	208
Bermudas .....	40	6,093	6	1,720	...	589
Barbados .....	...	...	1	772	...	52
Jamaica .....	2	268	5	1,364	...	...
Trinidad and Tobago .....	2	495	2	739	...	82
Other British West Indies .....	4	711	1	350	...	29
Cuba .....	38	6,541	19	3,739	...	4,419
Dominican Republic .....	18	2,626	...	...	...	...
Netherland West Indies .....	1	494	...	...	...	346
French West Indies .....	...	...	...	...	...	27
Haiti, Republic of .....	8	1,255	2	420	...	...
Virgin Islands of U. S. .....	2	471	...	...	...	24
Argentina .....	77	10,938	...	...	...	8,678
Brazil .....	25	3,203	42	7,616	...	2,530
Chile .....	5	486	1	176	...	...
Colombia .....	172	27,168	36	4,941	...	393
Ecuador .....	...	...	3	368	...	...
Peru .....	4	505	...	...	...	123
Uruguay .....	17	3,100	5	610	...	766
Venezuela .....	107	14,377	18	3,235	...	1,123
Aden .....	4	905	...	...	...	...
British India .....	181	21,083	2	1,490	...	2,278
British Malaya .....	26	3,845	...	...	...	243
Ceylon .....	...	...	...	...	...	18
China .....	3	610	...	...	...	289
Java and Madura .....	5	1,001	...	...	...	117
Other Netherland East Indies .....	...	...	...	...	...	69
French Indo-China .....	9	2,149	2	724	...	68
Hong Kong .....	45	3,268	...	...	...	2,147
Japan .....	167	19,399	24	4,050	...	4,490
Kwantung .....	...	...	...	...	...	65
Philippine Islands .....	167	25,457	...	...	...	3,705
Siam .....	36	4,918	...	...	...	448
Syria .....	3	543	...	...	...	...
Turkey .....	4	733	4	618	...	406
Other Asia .....	1	521	...	...	...	...
Australia .....	1	200	...	...	...	891
New Zealand .....	5	492	...	...	...	389
British East Africa .....	4	440	4	877	...	325
Union of South Africa .....	208	31,132	4	674	...	2,455
Gold Coast .....	...	...	...	...	...	240
Nigeria .....	13	1,120	...	...	...	26
Egypt .....	4	472	...	...	...	221
Algeria and Tunisia .....	180	16,840	1	121	...	4,690
Other French Africa .....	1	99	...	...	...	16
Morocco .....	71	12,333	8	1,190	...	1,235
Mozambique .....	2	596	...	...	...	14
Other Spanish Africa .....	1	92	...	...	...	...
Total .....	6,316	\$724,202	1,523	\$209,145	...	\$283,429
Shipments to Hawaii .....	182	24,187	24	4,341	...	3,599
Porto Rico .....	112	18,477	14	3,010	...	2,205



# Cabinets

WORTHY OF THE FINEST UNITS

... DELIVERED ON TIME

The same scientific accuracy . . . the same durability and reliability . . . that you demand of the units you manufacture, are built into the refrigerator cabinets produced in this plant.

But building fine cabinets is not the only service offered you here. At your disposal is an engineering department backed by over 36 years' experience in refrigerator manufacture, and headed by men who are acknowledged leaders in their field. With the aid of these men you are assured of procuring a cabinet ideally suited to your own particular needs.

Unexcelled manufacturing facilities—among the largest in the country—completely eliminate the handicap of delayed deliveries. We are glad to make delivery dates suited to your convenience . . . it is a matter of pride in our plant that they are lived up to.

Whether your need is for a few dozen cabinets or several thousand, we invite your inquiry.

### REFRIGERATOR DIVISION

Tennessee Furniture Corporation

Chattanooga, Tennessee



Distributorships for the complete CAVALIER

Electric Refrigerator are now open

in some sections. The CAVALIER

embodies a unit with rotary com-

pressor, overhead "package"

installations—remarkably

free of service inter-

ruptions. Write for

complete details.

Modern equipment in every phase of operation and an experienced manufacturing personnel enable us to effect economies which are gladly passed on to our customers.

Skilled engineers, working either from your rough ideas or in conjunction with your own engineers, can produce any type or style of cabinet that you may need.



IDEAS AND  
IMPRESSIONS

## COMMENT

VIEWS AND  
EXPERIENCES

By F. M. COCKRELL

## The Tired Salesman

On the program of the Westinghouse distributors dinner at Westbrook Country club, Mansfield, Ohio, Oct. 1, Dr. G. W. Allison, orator and spellbinder of the N. E. L. A. Refrigeration Bureau, gave his credentials for addressing a group of appliance merchandisers by harking back to his house-to-house peddling days.

"I have sold many a flat iron," he said, "by asking a housewife to let me leave the iron in her home until next day so that I would not have to carry it back to the store."

"It was a variation," Dr. Allison explained, "of the old trick of the sewing machine salesman who was forever breaking a buggy wheel, thereby giving him an excuse to drag his machine into the prospect's house to be kept (and used) until he could call for it."

## M. C. Morrow

Being next on the program, I followed Dr. Allison's example and recalled a few incidents in my own experience with the selling of Westinghouse heating appliances 15 years ago.

M. C. Morrow, now sales manager of the domestic appliance department of Westinghouse, had conceived a national plan for selling heating appliances and came to Chicago to set up the operation in that territory.

He brought along C. F. O'Donnell (now star salesman of the Edison Electric Appliance Co.) to organize and train the first crew of door bell ringers.

As soon as the plan was under way, they dumped the job in my lap and went on to the next district.

I put in a busy summer trying to keep track of 25 or 30 so-called salesmen who worked through Iowa, Illinois, and Indiana in towns where deals had been arranged with the local public utilities.

## Selling to Relatives

Morrow tells me that the first crew was organized in Hazelton, Pa. There he hired all the boys in the high school graduating class.

They sold about 200 appliances to their relatives but with that market saturated, they were all through.

Some one told him he ought to hire girls to sell household appliances so he tried that in New Haven, Conn.

## Popular Girls

The girls were doing fine. Sales were especially good in fraternity district of Yale University.

They were so popular, in fact, that the boys gave them a party at one of the hotels.

While the party was in progress one of the public utility executives, disturbed by the hilarity, inquired of the hotel manager: "Who are those girls?"

The manager replied: "Why, they are all your employees."

Next morning the girls were fired and so ended that great idea.

## Blowing Fuses

The first "sales school" in the Chicago

district was held in the Blackhawk hotel at Davenport, Iowa.

I rented a parlor room and gathered up a dozen recruits by advertising in the local papers.

When O'Donnell arrived we hooked up the three appliances for a demonstration and immediately put the hotel lighting system out of commission.

The salesmen soon discovered that it was not safe to attempt a demonstration in the home because attaching the iron usually blew the fuses.

In those days electricity was used only for lighting and a couple of 5-ampere fuses carried the whole load in most homes. Wall outlets were practically unknown.

Each man carried a black bag containing an electric iron, a toaster and a percolator.

O'Donnell taught them to ring the bell, open the bag and take out the iron.

When the housewife came he opened the screen door, handed her the iron, closed the door and stepped back.

While the housewife held the iron, he launched into his sales talk.

## Lady Demonstrators

About the time the small heating appliance campaign was going strong, Westinghouse brought out an electric range.

They had purchased the Copeman patents which included the alarm-clock control of the oven.

So I advertised for "lady demonstrators" skilled in culinary art.

In those days a "lady demonstrator" was usually a buxom blonde, a divorcee, wise in the ways of the world.

She could smile ingratiatingly when necessary but had a cold glint in her eye when arranging terms and wages.

## An Electric Dinner

Somebody in South Bend, Ind., had a bright idea for selling all the public utility executives on the electric range.

It was to serve a dinner, all cooked electrically.

And that was just as novel as an all-quick-frozen food dinner was a year or two ago.

I sent one of the blonde ladies down to operate the electric range.

As it turned out, what we needed was a couple of electrical engineers from East Pittsburgh.

The range simply would not get hot—although the demonstrator did. The dinner was a mess.

## Sun-struck Display

One of my ideas was an electric appliance window display.

I hired a Chicago artist to design a background. He made it out of cardboard and blue silk.

I carried the outfit on the train to LaPorte or Elkhart, I have forgotten which, and worked until midnight installing it in the public utility window.

Next morning, when the campaign opened, I went over to admire the display.

But the sun had arrived first—there were no awnings—and the whole background had just curled up and died.

Sadly I gathered up the twisted remains and threw them out in the alley.

## Time, Toil and Trouble

—Saved by a Westinghouse iron.

Such was the headlines of a full page local newspaper advertisement which I wrote, announcing the appliance crew in one of the communities.

I spent a lot of time toiling over the copy, but the trouble started when the head office got a copy of it.

They gave me a lecture on the fallacies of the negative appeal in advertising.

## Getting Experience

Seems that I found out most of the wrong ways of doing everything that year.

The job paid a hundred dollars a month, but the experience was worth a lot more.

That is one of the advantages, to a young man, in connecting with a new line of business.

You get a chance to try a lot of things, to use your own ideas, good or bad, and find out what works, and what doesn't work.

Later on, when the rules are all printed in the manual, you are told how to do things right, but that doesn't develop your confidence in your own judgment.

## Isko Item

In recent issues, several bits of electric refrigeration history have been published on this page. This week, W. B. Satterlee of Kansas City, is contributor.

Mr. Satterlee sold the Isko machine 15 years ago and says that some of them are still running in Kansas City.

He remembers the name of A. Y. Gowan who, he believes, was connected with the Lehigh Portland Cement Co., as one of the Isko backers.

Young Mr. Wacker, whose father was then in the brewing business in Chicago, was another.

Satterlee is head of the Columbian Electric Co., Westinghouse agent-jobber for the state of Kansas and a small part of Missouri.

He also operates a retail business in Kansas City under the name of Satterlee and Blue, Inc.

## W. B. Satterlee

Satterlee felt at home in Mansfield, for he once worked for the Ohio Brass Co. as a salesman in the Ohio and Michigan territory.

He got the job because of his previous experience with the Kansas City Railway Co., where he was in the overhead construction department.

He started an electric supply department for an acetylene welding company in Kansas City, beginning with a case of carbon lamps made by the old Moline Lamp Co.

Satterlee sees a great future for refrigeration, but one of the problems in his territory now is that some dealers hesitate to go into the business because of doubt as to what the public utilities are going to do.

When Kansas passed a law forbidding the utilities to merchandise, they dumped their stocks and quit the appliance business.

The law was intended to make things easier for the dealers, but now that the utilities are out of the way, the dealers do not seem to be keen to follow up their advantage.

They are afraid the law may be repealed.

DEALER STARTED IN  
MOTORCYCLE SELLING

By R. M. Douglass

BUFFALO—The Charles Liske store, one of the "key" radio dealers of this city, has found Copeland electric refrigeration a valuable addition to its line of merchandise.

The Liske store has a background of merchandising and advertising experience that is valuable in merchandising electric refrigeration. The business was started by Charles Liske, in April, 1914, as a bicycle, motorcycle, and sporting goods store. It was a comparatively small place with a front of approximately 20 feet and a depth of 75 feet—and practically no customers.

## Rode in Races

Without a following, Mr. Liske went out among the people, and mixed with them. He rode with them at every opportunity. He believed in the importance and value of treating his customers as personal friends. He probably was a disciple of Elbert Hubbard's principle that "we make our money out of our friends. Our enemies won't have anything to do with us."

The advertising fund was close to zero. Being a motorcycle store it was perhaps natural that the advertising was of the stunt type. It consisted of two racing machines which Mr. Liske rode himself. He developed into a highly skilled rider and a master of the half-mile dirt track. He became the outstanding motorcycle racer of the city and held several local track records to attest his ability.

He became a well known figure through his racing victories. His business grew with his fame and after two years he doubled the floor space of his store and added Victrolas to his line. He kept up his hard work and the business continued to grow and prosper.

## Starts in Radio

Then in 1924 along came radio. He was quick to see its possibilities and immediately got into that line. He pursued the same aggressive sales efforts with radio and made a success of that line as he had the previous lines. As Mr. Liske put it, "the advertising expenditure had now climbed to about \$100 a month." Today it is \$1,000 a month.

The era of bicycles and motorcycles was rapidly being superseded by that of the automobile. As a consequence the store was undergoing a complete change and bicycles and motorcycles were dropped. The store became exclusively a music shop. Again the floor space was doubled. The new addition was equipped with demonstration rooms. The business increased and the firm of Charles Liske became a "key dealer."

## Enters Refrigeration Field

About two years ago, he saw in electric refrigeration a future that would parallel radio. With a large, well trained crew of salesmen and a well equipped and trained service crew, he entered the refrigeration business. Today Liske is Copeland distributor for the Buffalo territory, which takes in a large territory in western New York.

Underlying his merchandising plan is a comprehensive knowledge of the territory and an intimate understanding of the retail dealer's problems, which enable Mr. Liske to give advice and help to the dealers under him.

The increased volume of business has again made it necessary for Liske to add to its space. The floor space is now being increased to 6,200 sq. ft., and another showroom and 75 ft. of show window and extra storage space for supplies, stock, etc., are being added.

Associated with Mr. Liske is his brother, Ralph, who acts as advertising manager of the company.

ELECTROLUX FIRM SENDS  
LETTERS TO PURCHASERS

BOSTON—Several thousands attractive illustrated letters in color are being mailed to tenants of apartments by the Boston Consolidated Gas Co., calling their attention to the advantages of Electrolux gas refrigerators.

A long color panel at the side of the letter features a winter scene amplified with the headline "As silently as nature makes ice." The copy, which is printed in large type, is brief and takes but ten seconds to read.

COLUMBUS TILE FIRM TO  
SELL FRIGIDAIRE

COLUMBUS, Ohio—Appointment of the Columbus Tile and Fireplace Co. as a dealer for Frigidaire Corp. was announced here this week. The local concern is an old Columbus business establishment, its operators having been in business for the past 20 years.

A complete line of household Frigidaires, commercial equipment, milk coolers, electric water coolers, and room coolers will be handled. A household display has been placed on the showroom floor. Large newspaper advertisements will herald the opening of the new Frigidaire outlet.

1932  
REFRIGERATION  
DIRECTORY

The 1932 REFRIGERATION DIRECTORY will be published in book form—in handy, reference size, 6 by 9 inches.

No expense is being spared to make it the most complete buyers' guide ever compiled for the industry.

Our aim is to list all manufacturers within the industry (manufacturers of refrigeration systems, equipment, parts, supplies and materials), as well as manufacturers who sell to the refrigeration industry (such as manufacturers of production and service tools, related and companion merchandise, delivery and office equipment, electric signs, advertising services, etc.).

The contents of the 1932 REFRIGERATION DIRECTORY will include:

1. Classified listing of manufacturers of products
2. Geographical listing of manufacturers
3. Alphabetical listing of manufacturers
4. Alphabetical listing of trade names
5. Statistical and other data

Such a comprehensive listing of buying information will make the 1932 REFRIGERATION DIRECTORY a valuable handbook on the desks of executives, engineers, purchasing agents and dealers throughout the industry.

No manufacturer should overlook this opportunity to get free listings under the proper classifications in the directory.

Manufacturers will also want to use display advertising pages to put their messages before buyers of the industry. Advertising rates are low—within the budget of even the smallest manufacturer who has something to sell to the manufacturer or dealer.

Write today, or use the coupon below, for complete details.

## BUSINESS NEWS PUBLISHING CO.

550 Maccabees Bldg.

Detroit, Mich.

## Request for Free Listing in 1932 Directory

Business News Publishing Company,  
550 Maccabees Bldg., Detroit, Mich.

- ☐ Please send blanks for free listing of manufacturers' products in 1932 REFRIGERATION DIRECTORY.
- ☐ Attached find descriptive literature of products we manufacture.
- ☐ Please send advertising rates for 1932 REFRIGERATION DIRECTORY.

Company.....

Attention of.....

Address.....

## Give these dishes... they help clinch the sale



## PYREX

REFRIGERATOR DISHES

"Pyrex" is the registered trade-mark of  
Corning Glass Works and indicates their  
brand of resistant glass.

EVERYTHING else being equal in the customer's mind—it's the little "extras" that count. For that extra sales appeal... use a premium. For premiums that pull... give Pyrex Refrigerator Dishes.

Made of the famous Pyrex heat-resistant glass, these dishes may be used for baking and serving. Stacked, they save space in the refrigerator.

They retail for as little as 85c... set of four, \$4.40. Get them from your jobber or write to Corning Glass Works, Corning, N. Y. Prices slightly higher in the West and Canada.



## CONNECTICUT DEALERS ADOPT CODE OF ETHICS

By Charles B. Barr

NEW LONDON, Conn.—A high degree of cooperation and interdependence has been reached by the refrigeration merchants of this seaport through the formation of an electric refrigeration bureau and adoption of a code of ethics to which all have agreed to adhere.

There are nine members in the present bureau, eight in New London and one in Lyme. John M. Lyman, manager of the New London branch of Modern Home Utilities, Inc., General Electric distributor, is chairman of the bureau. The membership includes:

Modern Home Utilities, Inc., General Electric; Connecticut Power Co., Frigid-air; Bruce Electric Co., Copeland; Modern Electric Co., Majestic; R. P. Smith, Westinghouse; United Music Co., Norge; Schwartz Furniture Co., Kelvinator; A. J. Havrilla, Servel, and the Connecticut Light & Power Co., Lyme.

The Connecticut Power Co. furnishes lighting current for the New London area, and an arrangement has been made between this company and other members of the bureau whereby it is given names of persons to whom refrigerators have been sold.

### Code of Ethics

The code of ethics of the New London refrigeration bureau is as follows:

"When in the course of natural events it becomes desirable for a group of merchants to eliminate evil trade practices from their industry, it is essential that they declare the cause which impels them to this end. We hold these truths to be self-evident:

"That all merchants are, in the eyes of the law, equal.

"That they have certain inalienable rights.

"That among these is the right to do business in an ethical manner at a fair profit.

"That when any form of competition becomes destructive of these ends, it is the right of merchants to abolish such competition and to substitute cooperation, laying its foundation in such principles as to them may seem most likely to effect the development of their industry and an increase in their proper profits.

### Stop Unfair Competition

"The history of past competition is a history of repeated injuries and loss. Acts have been performed which have curtailed our markets. Other acts have seriously hurt the operations of worthy merchants. Still, other acts have been detrimental to the public interest, as well as doing injury and causing loss to the trade as a whole.

"The net result of the reign of competition has been that dealers having lost sight of their natural sense of fairness have been striving to reduce each other's profits instead of striving to secure a fair share of the consumer's dollar. Such conditions must not be allowed in our industry.

"We, therefore, the refrigeration dealers of New London and vicinity do solemnly declare that we will desist from those competitive acts and practices which will lead to a very unpleasant and unprofitable condition, and that we will:

### Poor Trade Practices

"Eliminate premiums or concessions of any kind or sort which hide a price reduction under the guise of gift, trade-in allowance or other subterfuge.

"Refrain from installment selling on any basis but to the extent of requiring fair and reasonable down payment, proper carrying charges and restricting the period of time payments within businesslike limits.

"Refrain from free trials.

"Refrain from libel or aspersion upon any competitor's merchandise or upon his financial standing or business responsibility or honor; and refrain from the practice of unselling or causing a purchaser to become doubtful of or dissatisfied with their purchase.

"Cooperate wholeheartedly with the electric utility company, and expect the same cooperation in return.

"Advertise constructively rather than competitively, with the idea of creating demand for the services rendered by the merchandise we all sell, it being appreciated that the greater the total demand for the same the more sales all will make.

"Compete on the basis of value, offering the public such genuine bargains as our abilities may permit us to offer at reasonable merchandising profit, but eliminating cut-price practices detrimental to the business as a whole; mutually agreeing that business conducted in accordance with this code will work no hardship upon any merchant, nor upon the electric utility company nor upon any manufacturer, and that our service to the public will therefore be improved and broadened.

"We, therefore, the dealers of New London and vicinity solemnly declare that we will desist from all competitive acts that may be contrary to the above principles, and that we will endeavor to work in harmony for the upbuilding of our mutual interests, and in support of this declaration of interdependence, we pledge our business honor."

# TEMLOK is also ready for EASY INSTALLATION

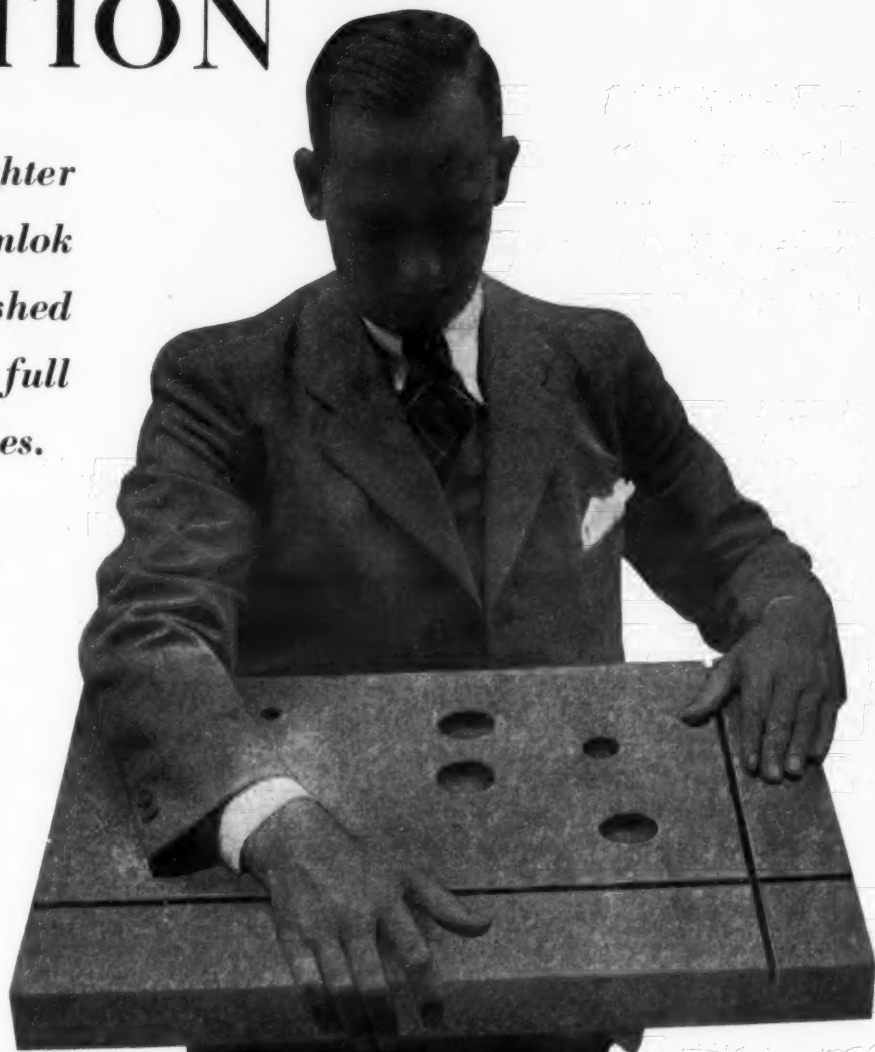
*With lower conductivity and lighter density, Armstrong's Improved Temlok Refrigerator Insulation is furnished cut to size enabling you to take full advantage of production economies.*

WHEN you buy insulation, you want easy installation and low cost as well as high insulating efficiency. Remember that Armstrong's Temlok in addition to all its other advantages, is furnished in fabricated sets, cut to size, ready for convenient, economical installation. But this is only one of many features.

When Armstrong first introduced Temlok to refrigerator manufacturers, one fact was foremost. The rigid fibreboard had lifetime efficiency. It also had low conductivity, light weight, low moisture absorption, and, of course, surprisingly low cost. It was odorless and did not promote mold or bacterial growth. And it was structurally strong.

Now Armstrong has presented the improved Temlok. It possesses all the advantages mentioned above. But it also offers two important improvements—a lower conductivity—.28 B. t. u. per square foot, per inch thickness, per degree Fahrenheit temperature difference, per hour, at 60 degrees F. mean temperature—and a lighter density .9 pound per board foot. In addition you can get fabricated Temlok, cut to size. Actually it is made to order. You give the sizes and specifications you need for your refrigerators. You get the new, improved, low-cost insulation delivered to you ready to be installed.

This latter gives you three actual economies. You save money—you save time—you save labor. And the results are equally important



Ready for you—Armstrong's Temlok, fabricated and cut to size; made in full 1/2", full 1", and laminated 1" thicknesses, and in built-up layers as desired.



Temlok is especially fabricated from the moisture-resistant heartwood fibres of Southern pine to meet the needs of the domestic refrigerator industry.

to the refrigerator merchandiser. He sells a refrigerator of which he can say: "Insulation made by Armstrong." Important to maker and user is Armstrong's long experience in insulation manufacture.

You can have complete data and a free sample of Temlok on request. Armstrong Cork & Insulation Co., 917 Concord St., Lancaster, Pa.

Armstrong's  
A  
Product



ARMSTRONG CORK & INSULATION CO.  
917 Concord St., Lancaster, Pa.

Please send me complete details regarding Armstrong's Temlok Refrigerator Insulation.

☐ Please send sample.

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_



Little Stories of Interesting  
PEOPLE  
In the Refrigeration Industry

# THE EXPANSION VALVE

By George F. Taubeneck

Little Stories of Interesting  
IDEAS  
In the Refrigeration Industry

## F. E. Sellman

Already combining the duties of consulting engineer for Servel, Inc., and vice president in charge of sales of Electrolux Refrigerator Sales, Inc., F. E. Sellman has recently undertaken the additional job of vice president in charge of sales for Servel Sales, Inc.

Mr. Sellman came to the United States from Sweden at the age of 11. His father had preceded him, coming over here in 1893 as secretary to an uncle who was covering the Chicago World's Fair for his newspaper.

With F. E. Sellman came his brother, Niles. Both have steadily risen from the ranks until now each looms large in the Electrolux picture.

Niles Sellman, who is with the Consolidated Gas Co. of New York City, probably sells more Electrolux refrigerators each year than any man in the country. The brothers team up well.

F. E. Sellman is noted as an organizer. As a chief engineer for the Pennsylvania railroad, his organizing talents came into considerable prominence. He also served as a naval officer.

Mr. Sellman has some very definite ideas about handling men, which he tried out with success in the navy, and is now applying in his management of sales organizations.

"On the ship I worked my men like hell, gave 'em good grub and plenty of liberty," he says. "You couldn't get a man to leave that boat."

"I follow the same policy with a sales organization. Work 'em hard, treat 'em right, give 'em liberty, and they'll do right by you."

Mr. Sellman believes that a good executive will have plenty of time to see everyone worth seeing.

It's all in organizing, he declares. If you organize a business right, your men will do the work. And then all you will have to do is think!

Pictures of Mr. Sellman appear in this issue of the News. He is a commanding type of individual; knows what he wants, and proceeds to get it.

He swears by Buick cars, likes good singing, enjoys group conviviality.

## C. A. Miller

Back in the summer of '29, when C. A. Miller was Chicago representative for Servel-Electrolux, we had dinner together often.

Those were the days of the historical Code War in Chicago, and the Valve spent much of the summer in Chicago trying to find out just what was going on.

Getting the facts in that complex situation was not such an easy job. Mr. Miller had learned many of the City Hall ropes, and was considerable help.

Last week at Evansville we found him running a convention as the newly appointed sales manager of Servel Sales, Inc. It was his first public appearance in that capacity, and he made the most of it.

He has infectious enthusiasm, he is optimistic without being a Pollyanna, and he shows that he likes people without being over-sentimental. All of which attributes sound like requisites for a good sales manager.

## Bill Reynolds and the Gestalt Theory

Bill Reynolds used to be a radio operator in the U. S. Navy. Later he was an advertising manager for a public utility (electric). Now he is advertising manager for Electrolux Refrigerator Sales, Inc.

Down at Evansville last week we had several long talks. He was an onlooker at the Servel conclave, gathering ideas for use in entertaining gas utility officials at the coming A. G. A. convention.

From his keen, analytical brain came a number of ideas and dissections which were absorbingly interesting.

Bill is the first person who has ever been able to explain Gestalt psychology to me.

The theories of Adler and Jung, of Pavlov and Watson, of Allport and Casey—all apostles of new schools of psychological thought—are not especially difficult to grasp.

But the Gestalt system, recently

worked out by lofty-browed Germans, is a baffler.

As in the case of other psychological systems, a great deal depends on the proper definition of terms. And just for fun, we'd like to give you a couple of Bill's Gestaltic definitions.

The Gestalt followers divide mankind into two groups, integrates and disintegrates.

An integrate, according to Reynolds, is a man who builds up a structure of facts and ideas and notions until he finally arrives at a conclusion.

A disintegrate hits upon conclusions suddenly—intuitively and flashingly—and then goes seeking reasons to substantiate his ideas.

Have you a little disintegrate in your home?

Reynolds maintains that the common denominator of all good advertising men is imagination. All the physical types in the catalog belong to the profession. Advertising men come from diverse places, contrasting backgrounds. But they must have imagination.

The Electrolux advertising manager claims he can decide whether or not a man has the right stuff in him to be a successful advertising man by listening to him talk when off guard, when in a reverie.

The "phantasy stream" (progression of thoughts and associations) of an advertising man moves mighty fast and takes some sudden leaps, according to Reynolds.

## Herbert H. Springford

Executives who work behind the scenes, who rarely appear in the public eye—preferring to think and act quietly, unblinded by the glare of the spotlight—often give the impression of being cold, remote mechanisms for making decisions. Their human qualities are rarely suspected.

Herbert H. Springford, chairman of the board of Servel, Inc., belongs to that unostentatious type. One hears about him, but rarely sees him.

The Valve has found him, however, a very human person. Mr. Springford laughs heartily at jokes, enjoys wrestling matches hugely, and has a fine emotional capacity for enjoying good music.

He is a very pleasant dinner companion. Aware of what is going on in the world, thoroughly conversant with industry and its problems, his conversation is both enlightening and enjoyable.

If he has a personal motto, it probably is: "Be yourself." He has fewer airs and pretensions and acquired attitudes than almost any man I've ever met.

Open, candid, honest, frank, he has no trace of the theatrical in his make-up. All of which indicates complete self-confidence and lack of self-consciousness.

Floyd Allport of Syracuse and Bill Casey of Columbia, leading exponents of modern American psychology, would say that Mr. Springford is "free from tensions." He would interest them greatly.

Before coming to Servel, Mr. Springford had a long and consistent career as an executive in big corporations, including many years as president of the Steel and Tube Co. of America.

After this concern was absorbed by the Youngstown Sheet & Tube Co., Mr. Springford joined the Dodge Bros. motor car organization, with which concern he remained until he was called to the helm of Servel, Inc.

He has affiliations with the Dillon, Read banking interests.

## Strike Up the Band

Music at the Servel Hermetic convention was supplied by the Servel Concert Band, an organization of musicians composed, with two exceptions, entirely of workers in the Servel factory at Evansville.

The two exceptions are high school boys who hope to work for Servel some day.

This band plays at municipal functions, as well as for gala occasions at the Servel plant. All summer it has been giving one concert a week in several Evansville parks, moving from park to park.

Leader of the band is Norman Langley, an athletic, good-looking young fellow from the service parts depart-

## Swan Song



V. E. VINING  
Bids Servel organization farewell.

ment. He learned his music at Bosse high school in Evansville.

Organized two years ago by Don Hoering, Servel manager of recreation and welfare, the band has grown and flourished ever since. At the time Mr. Hoering got his group together for the first practice, most of the men were beginners.

From this nucleus was built a crack band of 40 pieces, of which the Servel factory is rightly proud.

Another Servel factory group, a playground baseball team, has earned considerable plaudits around Evansville this summer. The Servel club won division pennants in each half of the twilight league season.

## Southern Hospitality

Going to Atlanta is always a genuine pleasure, for there one is always entertained royally.

Among the friends upon whom the Valve can usually count as Official Greeters are O. J. Willoughby, publishing director of the John W. Yopp Publications, and C. T. Baker, consulting refrigeration engineer.

These gentlemen, typical Atlantans, make you feel that your arrival in the city is the event of the year, and that your leaving Atlanta would be a calamity of the first order.

At Evansville we met another hospitable Atlanta citizen. His name is Lawton W. Griffin, and he is a Servel dealer down there.

Came up to the Servel convention with a gang of star salesmen, many of whom had never crossed the Mason-Dixon line before, and who were almost disappointed because no northern negro "sassed" them.

Mr. Griffin makes it clear that if you don't visit him and be his guest while in Georgia he will be desolated, suh, beyond possibility of assuagement.

We shall indeed return to Atlanta at the first opportunity.

## Some of the Boys

C. H. Tanger, Servel engineer, knows his way about a convention, especially in the convivial proceedings, and had a goodly gang around him most of the time. Tanger has an almost unlimited capacity for enjoyment.

Bill Nelson, Servel Hermetic dealer in Spokane, Wash., walked under the glare of the lights onto the wrestling ring at the Evansville coliseum just after the last bout of the Monday night program had been finished.

Bill recited a moving ballad of the prize ring—all about a fighter who killed a buddy of his in a championship bout—with appropriate gestures.

The poem, a new one on us, sounded like it had been written by Robert W. Service ("Shooting of Dan McGrew," "Cremation of Sam McGee").

At one time Nelson was lightweight champion of the Pacific Coast. Loss of an eye cut short his climb toward the national belt.

E. Harold Greist of Batten, Barton, Durstine & Osborne, advertising agency which handles the Servel account, is a well-groomed young man with a mustache and a friendly smile. His speech at the convention indicated that he had some ideas which we want to tap some day. Greist would like to see some more Baron Munchausen yarns in the Valve.

J. Fried, Servel dealer in Vicksburg, Miss., gave us a picture of his fishing and hunting lodge, which is built 20 feet in the air between two trees on the shore of Long Lake, six miles from Vicksburg.

This hunting lodge has, he declares, all the comforts of home.

Doc Hainsworth, head of the Electrolux research laboratories, is much more of a joyous soul and goodfellow than one would imagine a Ph. D. research scientist to be. But then one never can tell.

Loc used to be a fullback in his college days, and looks it.

O. B. Lance, obliging young assistant to Paul Jones, advertising and sales promotion manager, found one drawback to the convention. It made his recent bride a widow for three days, and neither were in favor of that very much.

But Lance lives in his job, and so that, of course, came first.

His boss tells, in amusing style, the story of Lance's wedding. One day the latter came to Paul and asked him if he could have the next day off. Paul didn't see how it could be done, for the work was stacked sky high.

"What is it you want to do?" asked Jones, somewhat annoyed.

"Well," said Lance, "I thought I'd go and get married."

He got the day off.

Bill Rorison, fire-in-the-eye youth who edits *Electrolux Refrigerator News*, and the Valve had much fun comparing notes on the trials and tribulations of gathering news from the four corners of the globe.

Bill is studying the art of house-organ editing as if it were a science, and has it down to a system which is both neat and effective.

Paul Jones, one of the most amiable hosts in captivity, had more friends at the convention than he knew what to do with or about.

Paul has an amazing store of energy, and does enough work to wear down three ordinary men.

Yet he always seems to have time to entertain visitors in a fashion reminiscent of Atlanta.

Sam Vining delivered a farewell speech that brought a choking to his own throat and heart-throbs to the entire audience.

Sam is the sort of man who breeds loyalty and love and devotion and comradeship and—but we've already talked about him so much in this column that you should have a good picture of him.

And if you are so fortunate as to know him personally, anything I might say about his personality would fall flat.

## Harold Van Orman

Former lieutenant governor of Indiana, Harold Van Orman is now concentrating his attentions on the inn-keeping business. His Hotel McCurdy was the scene of most of the Servel Hermetic convention activities.

Van Orman is an oratorical spell-binder of the first magnitude. He had a banquet audience howling for more. Minus the gestures and the coloratura voice, some of his cracks may be like punctured tires, but we'll try a couple anyway.

The former lieutenant governor declared that presiding over the "House of Misrepresentatives" and the other duties which accompanied his political job were old stuff to him, for he had been lieutenant governor of his own family for 14 years.

That Indiana Senate, he declared, was the best money could buy. When they responded to roll call on a measure, they shouted—not "aye" or "no" but—"not guilty."

## Gus Dyer

We've heard Gus Dyer before. His "electrical revolution" speech has been delivered before many similar assemblies and conventions, notably that of the N. E. L. A. at Atlantic City.

Dyer "simply panicked" the staid N. E. L. A., and I knew he had lots of stuff. Yet when he rose to make the last talk at the Hermetic banquet, most of us felt that he was in too deep a hole ever to rise.

Col. Smith had kept the crowd in an uproar with his cracks and quips, of which more will be told next week. Van Orman, as we have just said, also evoked howls of laughter.

By the time the program had rolled around to Dyer's speech, the crowd had been exhausted. Train times were nearing, and men began to get restless. But Dyer was equal to the occasion.

He had the crowd with him immediately when he began by telling a story about a fellow who stuttered. This stammerer was walking along the street, when he was stopped by a man who wanted to know where the Statler hotel was.

The stutterer sputtered. "Of all the men in this city," he shouted, "you would pick me out to ask where the st-st-st-st," etc.

Dyer, of course, felt like the stutterer.

Joke after joke he told, each a winner. One we had never heard before was that two weeks after Ben Franklin got married he discovered the meaning of lightning.

Illustrating the methods of specialty salesmanship, he related a yarn about a book agent who blew into a small town one day and sold a merchant one of his books. The merchant thought he would give it to his wife for a present.

When he got home that evening, he

(Concluded on Page 15, Column 2)

## That Evansville Stance



Winner of Servel golf tourney addresses the ball.



## REQUESTS FOR INFORMATION

Readers who can be of assistance in furnishing correct answers to inquiries, or who can supply additional information, are invited to address Electric Refrigeration News, mentioning query number.

### Rubber Ice Cube Trays

Query No. 536—"Are any other concerns manufacturing rubber ice cube trays besides Inland Mfg. Co.?"

Answer—No. They control patents.

### Units Manufactured

Query No. 537—"How many electric refrigerators were sold by the three leading manufacturers during 1930?"

Answer—These companies are, as yet, unwilling to make their figures public. Total figures, showing sales of the entire industry for the past 10 years were published in Jan. 14 issue.

### Coin Meters

Query No. 538—"Where can information on coin meter attachments for electric refrigerators be secured?"

Answer—Meterice of America Co., Ltd., 300 W. Adams St., Chicago.

### Address

Query No. 539—"Please give me the address of L. K. Wright, refrigerating engineer."

Answer—3507 90th St., Jackson Heights, Long Island, N. Y.

### Sulphur Dioxide Manufacturer

Query No. 540—"What company in Milwaukee, Wis., can furnish sulphur dioxide?"

Answer—Write advertisers in this issue.

### Heat Leakage Data

Query No. 541—"Where can we obtain technical information on the difference in heat leakage between dead air space and ground cork?"

Answer—Write L. E. Hawley, Armstrong Cork Co., Lancaster, Pa.

Query No. 542—"Will you furnish us with a list of manufacturers of electric washing machines?"

Answer—List mailed. Too long for publication here, but will be given in 1932 Refrigeration Directory.

### Unit Manufacturers

Query No. 543—"We would like to receive a list of manufacturers of complete units and units to be used in assembling electric refrigerators."

Answer—See directory on page 14 of Sept. 30 issue.

Query No. 544—"Would you send us a list of manufacturers of mechanical refrigerators?"

Answer—See directory on page 14 of Sept. 30 issue.

### Market Information

Query No. 545—"Do you have available or can you advise where we can secure the following information:

"1. Monthly indices of production or unfilled orders or shipments or sales for each of the following products in the electrical industry: transformers, motors, fans, refrigerators, and loud speakers.

"2. Monthly indices of money appropriated or money spent or value of contracts let by each of the following groups for electrical development: pub-

## Inspecting Frigidaire Displays



More than 3,000 persons attended the opening of Electric Equipment Corp., Davenport distributor.

## Expansion Valve

(Concluded from Page 14, Column 5)

found that his wife had bought an identical copy. He howled with rage, and went out the door to get his car and "go after" that young whippersnapper.

On the road out he hailed a neighbor who was driving past, and told him to go to the railroad station and stop the salesman.

The neighbor did as requested, and

lic utilities, railroads, and industrial concerns."

Answer—1. For transformers, motors, fans, try National Electrical Manufacturers Association, Graybar Bldg., New York City. Refrigerators—Not available, although same association is endeavoring to secure this information. Loud Speakers—Write Marshall T. Jones, chief of electrical division, Bureau of Foreign and Domestic Commerce, Washington, D. C.

2. Try National Electric Light Association, also Society for Electrical Development, both in Graybar Bldg., New York City.

**Wanted: Sales Director** for refrigeration sales by company who has been in business for ten years. State complete qualifications including detailed activities for past five years, with references. Enclose photograph. Address Box 372

found the book agent just about to board a train.

"Hey," bawled the neighbor, "John Pinckus wants me to stop you. Said not to let you get away."

"Oh, of course," said the salesman. "He wants one of my books. Here, you can take it and pay me for it, and then he'll pay you when he gets here."

And he boarded the train.

## 4 LINCOLN EXHIBITORS

LINCOLN, Nebr.—Four types of electric refrigerators were exhibited in the first annual food show which closed Oct. 3. The following dealers exhibited: Gold and Co., Westinghouse; Rudge and Guenzel, Kelvinator; Swift Lumber and Fuel Co., Frigidaire, and Iowa-Nebraska Light and Power Co., General Electric.

## THE CONDENSER

ADVERTISING RATE fifty cents per line (this column only).

SPECIAL RATE if paid in advance—Positions Wanted—fifty words or less, one insertion \$2.00, additional words four cents each. Three insertions \$5.00, additional words ten cents each. All other classifications—fifty words or less, one insertion \$3.00, additional words six cents each. Three insertions \$8.00, additional words sixteen cents each.

### POSITIONS WANTED

RADIO District Manager for national manufacturer ten years. Personal selling and sales directing Middle West, Chicago headquarters. Desirous entering refrigeration industry. Personal sales annually excess one million dollars. Possess complete picture refrigerator jobber and dealer setup Middle West. Qualified to execute all refrigerator and radio merchandising methods. Thorough knowledge of distribution thru jobbing channels. Available October 1st. Box 370.

IF YOU are considering the manufacture of electric refrigerators or room coolers, I can help you on a consulting basis, giving you the benefit of an unusual combination of engineering, sales-survey and sales experience. H. G. McComb, 2342 N. Kedzie Blvd., Chicago, Ill.

WANTED. Position by capable electric refrigeration service, installation and shop man. Experienced service manager. Thoroughly familiar with all types of installations. Have worked on all popular makes of machines. Seven years' experience. Thirty years of age, married, industrious, dependable and sober. Reasonable salary. Box 371.

### EQUIPMENT WANTED

WE WILL BUY all types of electric refrigerators—new or used—any size—any quantity—Refrigerating Electric Service & Installation Co., 2257 White Plains Ave., Bronx, N. Y. Tel. Olinville 5-1329.

KELVINATOR and Frigidaire parts wanted. Household and commercial. Will purchase in quantities for cash. Good Housekeeping Shop, Kingston, Pa.

# Use C. I. T. Service and defreeze Your Capital

One thing experience proves... there is more profit to be made by keeping your capital liquid than by letting it become frozen in long term paper.

The dealer who can't make a satisfactory profit out of selling refrigerators isn't likely to find gold in a side-line business of banking his customers.

Selling is a full time job... yours. Financing is a different one... ours. The whole aim of C. I. T. Refrigerator Financing Service is to relieve the dealer of credit burden and work so that the sales he makes on instalment terms will yield him as much net profit—everything considered—as his cash sales.

This complete C. I. T. Service is offered you through our office in your territory. There you will find trained finance men who will check credits, buy paper, make collections, and attend to every detail of your term business, quickly and efficiently.

C. I. T. Financing Plans cover all models of all approved makes of mechanical refrigerators. Costs are uniformly low, due to our great volume of business. The capital strength and past record of the C. I. T. institution is a guarantee of absolute dependability.

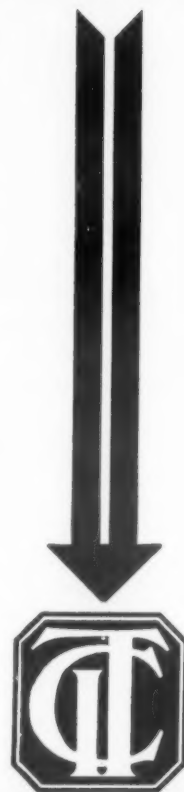
## C.I.T. CORPORATION

ONE PARK AVENUE, NEW YORK

A Unit of

COMMERCIAL INVESTMENT TRUST CORPORATION  
CAPITAL AND SURPLUS OVER \$90,000,000

Subsidiary and Affiliated Operating Companies with Head Offices in New York  
Chicago ~ San Francisco ~ Toronto ~ London ~ Berlin ~ Brussels ~ Paris  
Copenhagen ~ Havana ~ San Juan, P. R. ~ Mexico City ~ Buenos Aires  
Sao Paulo ~ Sydney, Australia ~ Offices in more than 160 cities.



THESE C. I. T. LOCAL OFFICES  
WILL WELCOME YOUR INQUIRY

Abilene ~ Akron ~ Albany ~ Allentown ~ Altoona ~ Amarillo  
Asbury Park ~ Asheville ~ Atlanta ~ Augusta ~ Austin ~ Baltimore  
Bay Shore ~ Beaumont ~ Beckley ~ Binghamton ~ Birmingham  
Bloomington ~ Bluefield ~ Boston ~ Bronx ~ Brooklyn ~ Buffalo ~ Butte  
Camden ~ Charleston ~ Charlotte ~ Chicago ~ Cincinnati ~ Clarksburg  
Cleveland ~ Columbia ~ Columbus ~ Dallas ~ Davenport ~ Dayton  
Denver ~ Des Moines ~ Detroit ~ El Paso ~ Erie ~ Fort Wayne ~ Fort Worth  
Fresno ~ Glens Falls ~ Grand Rapids ~ Green Bay ~ Greensboro  
Greenville ~ Hagerstown ~ Harrisburg ~ Hartford ~ Hempstead  
Hickory ~ Houston ~ Huntington ~ Indianapolis ~ Jackson ~ Jacksonville  
Jamaica ~ Jamestown ~ Jersey City ~ Johnson City ~ Kansas City  
Kenosha ~ Knoxville ~ Lansing ~ Lexington ~ Lincoln ~ Little Rock ~ Los  
Angeles ~ Louisville ~ Manchester ~ Memphis ~ Miami ~ Milwaukee  
Minneapolis ~ Minal ~ Montgomery ~ Montpelier ~ Mt. Vernon  
Nashville ~ Newark ~ New Haven ~ New Orleans ~ New York ~ Norfolk  
Oklahoma City ~ Omaha ~ Orlando ~ Owensboro ~ Perth Amboy  
Philadelphia ~ Phoenix ~ Pittsburgh ~ Portland, Me. ~ Portland, Ore.  
Poughkeepsie ~ Providence ~ Raleigh ~ Reading ~ Reno ~ Richmond  
Roanoke ~ Rochester ~ Sacramento ~ St. George ~ St. Louis ~ Salt Lake  
City ~ San Antonio ~ San Diego ~ San Francisco ~ San Jose ~ Seattle  
Sioux Falls ~ South Bend ~ Spokane ~ Springfield ~ Spring Valley  
Stockton ~ Syracuse ~ Tampa ~ Toledo ~ Tucson ~ Tulsa ~ Utica ~ Washing-  
ton ~ Wheeling ~ White Plains ~ Wichita ~ Wilkes-Barre ~ Youngstown.

## SUBSCRIPTION ORDER

Notice: Effective January 1, 1932, the subscription price of ELECTRIC REFRIGERATION NEWS (now issued every week) will be increased to \$3.00 per year.

Electric Refrigeration News,  
550 Maccabees Building,  
Detroit, Michigan.

Gentlemen:

Please enter my subscription to ELECTRIC REFRIGERATION NEWS, now issued every week. Please start with the..... issue.

U. S. and Possessions and countries in the Pan-American Postal Union:  
☐ \$2.00 per year. ☐ 3 years for \$5.00.

Canada (where new tariff of 5c per copy applies):

☐ \$5.00 per year, U. S. dollars, (\$6.00 after January 1, 1932).

All other countries:

☐ \$3.00 per year, (\$4.00 after January 1, 1932). ☐ 2 years for \$5.00.

Enter my subscription to REFRIGERATED FOOD NEWS (issued monthly),  
☐ \$1.00 in U. S. and Possessions and countries in the Pan-American  
Postal Union, ☐ \$2.00 in Canada, ☐ \$1.50 in all other countries.

Name.....

Attention of.....

or care of.....

Street address.....

City and state.....

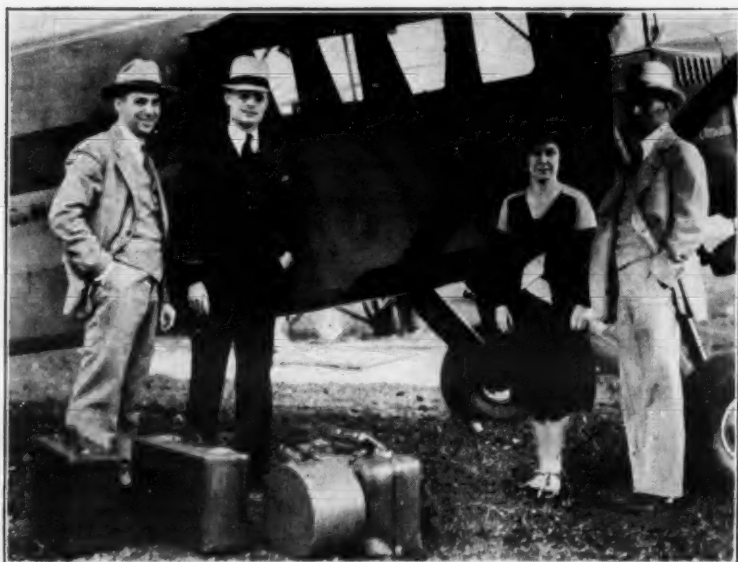
### SPECIAL COMBINATION OFFER

Good only until Oct. 15, 1931, in U. S. and Possessions and countries in Pan-American Postal Union: ELECTRIC REFRIGERATION NEWS and REFRIGERATED FOOD NEWS ☐ \$2.50 per year.



# Evansville Entertains 500 Servel Winners

## They Travel by Air



John W. Kurtz (left), of Omaha, and Jimmy Slowe of Evansville, greet H. C. Noll (right), and his wife at the Evansville airport. Mr. and Mrs. Noll flew to Evansville from Omaha, where Mr. Noll is a Servel Hermetic distributor, in their airplane. Both Mr. and Mrs. Noll are licensed pilots, and spend much time flying.

## New Sales Chief



F. E. Sellman greeted the convention in his new role as vice president in charge of sales for Servel Hermetic refrigerators. Mr. Sellman is also vice president in charge of sales for Electrolux refrigerators.

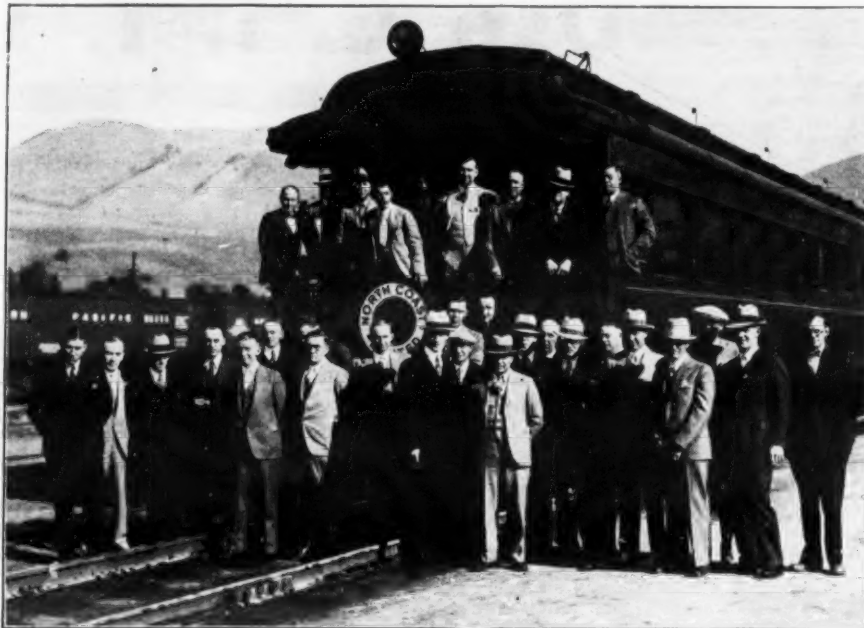
## Northwestern Quota-busters



From Servel's northwestern territory—Washington and Oregon—came these star sales leaders. In this group picture they are all looking off toward the great open spaces of the territory whence they came. From left to right: Harry Martin, E. R. Strand, Joe Williams, Charles Duke, and C. C. Murray.

Although those who plan the programs for electric refrigeration sales conventions generally see to it that most of the available time is occupied with talks and demonstrations calculated to help field men sell more goods, conventioners usually find plenty of opportunities to get together informally and talk things over. Herewith are presented snapshots of various Servel men in less serious moments at the convention.

## The Royal Northwest Unmounted



It was a long, long trail that wound to Evansville for the men in this picture. It took more than four days for this group to come from Oregon and Washington, and many were the adventures that occurred en route. At Missoula, Mont., this photograph was taken of the delegation from the Northwest.

From widely scattered sections of the country some 500 Servel representatives, distributors, dealers, and salesmen poured into Evansville, Ind., Sept. 28 and 29, to attend the first Servel Hermetic convention. These men were winners in the sales contest conducted through the summer by the Servel organization.

## Two Apples Apiece



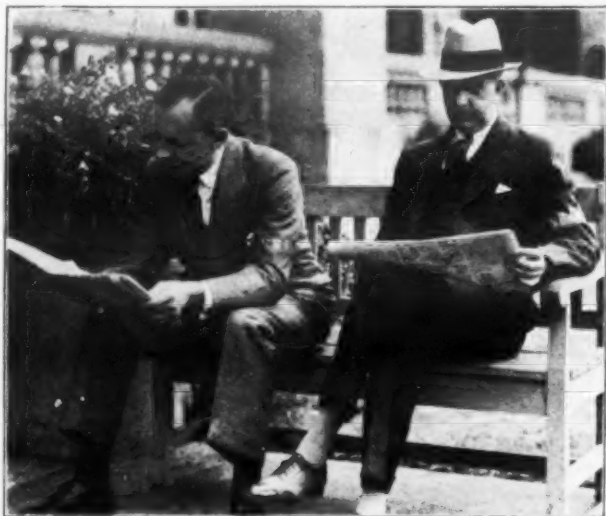
"Bud" Travis (right), Servel dealer in Wenatchee, Wash., presents two juicy apples to C. A. Miller (left), newly appointed sales manager for Servel Sales, Inc. Joe Williams (center), of the Harper-Megee organization, Seattle, is waiting patiently for his pair. Travis presented each distributor present at the convention with two of these Washington apples.

## Honest Now, Officer



Although the city of Evansville dressed up in its holiday best for the Servel convention, and notwithstanding the fact that city officials, from the mayor on down, expressed official greetings and good will, it all meant nothing to the traffic cop. Five men have piled out of this rumble-seated coupe to aver that it won't go over 25 miles an hour, and they were just crawlin', anyway.

## What's the News?



There's nothing like a newspaper to occupy an idle moment before dinner, agree W. T. Wyatt (left), Servel Hermetic representative in California, and A. H. Remsen, general office manager of Servel, Inc., in Evansville. Wyatt helped pilot a large delegation from the Golden State.

## 'For It's Always Fair Weather--'



Just having a big time over nothing at all. Left to right: (back row), S. R. Cooper, director of schools; Sam Luse, northwestern territorial representative; W. T. Wyatt, California representative; R. M. Bilhimer, southern territorial representative; (front row), A. T. Wood; Jack Carter, New England territorial representative; W. E. Bittinger; and H. A. Ware, middle western territorial representative.

## C. A. and Sam



C. A. Miller, sales manager, discusses plans for the promotion of Servel Hermetic sales in the northwest territory with Sam Luse, enthusiastic Servel representative out there. Luse steered to Evansville, the big party shown with the train in the center photo.



## ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office

The business newspaper of the refrigeration industry

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DETROIT, MICHIGAN, OCTOBER 7, 1931

Entered as second class matter  
Aug. 1, 1927, at Detroit, Mich.TEN CENTS PER COPY  
TWO DOLLARS PER YEARTAYLOR DEPICTS  
NEW PROCESS OF  
MAKING 'PAKICE'Vilter Man Describes  
Frozen Slush Before  
Chicago A.S.R.E.

By John T. Schaefer

CHICAGO—Operation of the new Pakice machine which has been developed by the Vilter Mfg. Co. of Milwaukee for making either frozen brine or Pakice was described to about 50 members of the Chicago A. S. R. E. section here last week by William H. Taylor of the Vilter engineering staff.

"Pakice is a frozen water slush when delivered from the machine, and resembles natural snow when the excess water has been drained from it," Mr. Taylor said. It weighs about 34 lbs. per cu. ft.

The machine consists of a horizontal cylinder with a double paddle revolving in it, and scraping a thin layer of frozen material from the cylinder walls with each revolution. Approximately .008-in. of clearance between the paddles and walls furnishes a safety factor for expansion and contraction of the parts with temperature changes, he explained.

The water or brine to be frozen is pumped into the cylinder at one end, and freezes to the surface of the cylinder wall by the refrigerating effect of the liquid ammonia evaporating in the aluminum jacket which surrounds the cylinder, according to Mr. Taylor. A paddle speed of 250 r.p.m. was found most economical with an 8½x8½-in. ammonia compressor running at 390 r.p.m. By corrugating the aluminum cooling sleeve, 24 sq. ft. of surface were secured.

About 61 lbs. per minute of wet slush (with 50 per cent water content) were produced by the machine while working with 15 lbs. suction pressure. Making brine-ice with 23 per cent sodium chloride, the Pakice machine produced about 16 per cent less.

The machine's production is continuing.

(Concluded on Page 3, Column 3)

ARMSTRONG CORK HAS  
CABINET TEST ROOM

LANCASTER, Pa.—Interesting contributions to the development of the refrigeration industry are expected through the Life Test Room of the Armstrong Cork and Insulation Co., here, for which the plan of operation has just been announced. This special laboratory has a capacity of 40 refrigerators of ordinary household size and is completely insulated with Armstrong materials.

Armstrong's Life Test consists of subjecting a refrigerator to accelerated conditions of temperature and humidity for definite periods of time, and measuring the efficiency by a comparison at stated intervals with the rating established on the equipment at the beginning of the test. When the equipment is dissected at the end of a predetermined period, definite information will be available regarding insulation performance and construction methods.

During the progress of the life test, all temperatures and humidities are recorded by accurate instruments. These

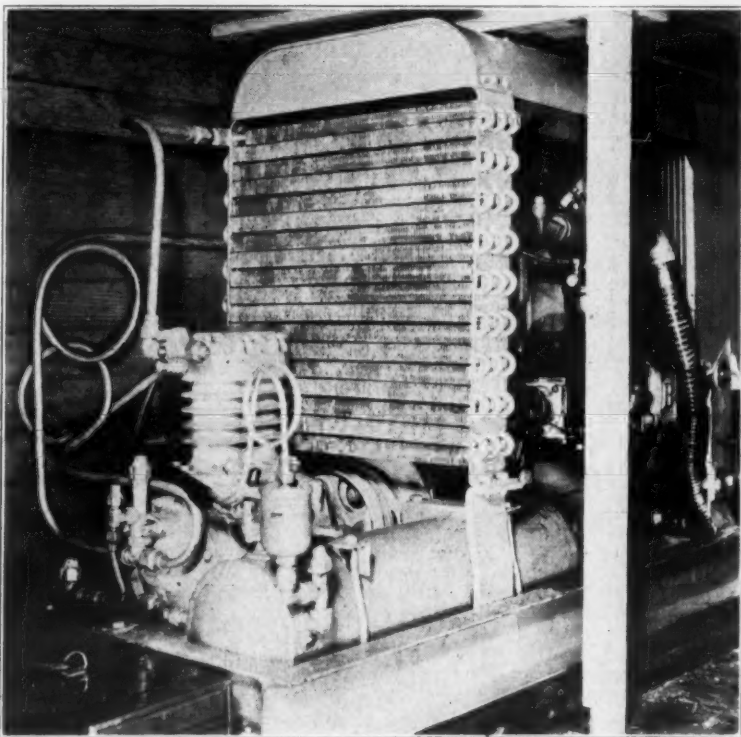
APEX SERVICE DEPARTMENT  
MOVED TO CLEVELAND

CLEVELAND—All repair parts and service matters of the Apex electric refrigerator will be handled from the Cleveland office of the Apex Electric Mfg. Co. hereafter, according to announcement made last week by O. T. Leasure, service manager.

IMPERIAL BRASS FURNISHES  
EQUIPMENT TO 'AKRON'

AKRON, Ohio—Sanitary equipment in the new U. S. S. airship "Akron," which recently made its maiden flight, was furnished by the Imperial Brass Mfg. Co., suppliers of fittings and special tools for the electric refrigeration industry.

## Refrigerated Truck's Heart



Close-up view of Frigidaire-Novo equipment which cooled the large G-M refrigerated transport truck on its recent transcontinental trip.

COPELAND WILL BUILD  
FACTORY ADDITIONS

MT. CLEMENS, Mich.—Two new plant extensions to the factory of Copeland Products, Inc., Mt. Clemens, Mich., have been announced by Louis Ruthenburg, president of the company.

Building contracts have already been awarded to Beyster & Olmstead, Inc., general contractors of Detroit for the construction work.

One extension will be an additional 57 ft. by 120 ft. east of the main building of the factory. It will be a brick structure with steel frame and sash with large window surfaces to afford ample light.

This addition will provide added floor space required on account of the growth of the business during the past two years.

In this section will be housed the advertising, dictaphone, mailing, record, bills payable, employment, and first aid departments.

A new building 50 ft. by 200 ft. will be erected in the rear of the main factory building. This structure will be of steel and masonry with large window surfaces. Its design will be of the monitor type.

This building will house the service division and will include a modern school for instruction of salesmen and service men in the fundamentals of refrigeration.

The remainder of this building will be used for other departments of the service division.

Larkin-Warren Offers  
Expansion Valve

ATLANTA, Ga.—To make their cross-fin cooling coils applicable to ammonia systems, engineers of the Larkin-Warren Refrigerating Corp. have developed a new thermostatic expansion valve. The new valve is designed for use at comparatively high suction pressures.

By using one valve with each ammonia coil, as the design contemplates, several temperatures can be maintained in different compartments of the case, the engineers point out. The first thousand valves are now going through the factory.

LIPMAN ENGINEERS DESIGN  
DISCFIN EVAPORATOR COILS

BELOIT, Wis.—Engineers of the General Refrigeration Co. here have designed and placed in production new "Discfin" evaporators for use with Lipman condensing units on display case and cooler installations.

The new cooling units are fabricated of steel pipe over which steel discs have been placed, the U-bend connections being electrically welded to the pipe ends, and the whole unit later being hot dipped galvanized.

Tube holes in the round discs are punched so as to form angled separators which provide good thermal contact

(Concluded on Page 3, Column 1)

Refrigerated Trucks Make  
Long Distance Test Trips

Copeland Truck Tours Michigan, Cooled By Hold-Over System

MT. CLEMENS, Mich.—Part of the traveling display of commercial motor truck bodies now touring the state of Michigan is a refrigerated truck with Copeland equipment.

In the caravan of 40 Chevrolet motor trucks are standard types of bodies, fire trucks, "sound wagons," in addition to the refrigerated truck body. One hundred and eighteen cities and towns will be visited by the caravan.

B. H. Hyatt, refrigeration engineer for the Copeland Refrigeration Co. of Detroit made the first part of the trip, from Sept. 14 through Sept. 20. When the caravan reached western Michigan, the refrigerated truck was taken over by W. E. Harper, Copeland, field representative for that territory. When it reaches eastern Michigan, K. E. Tobin, Copeland representative for eastern Michigan, will be in charge of the truck.

The refrigerated body and low side were designed by W. G. Finch, and was built by the Consolidated Products Corp. of Greenville, Mich. A Copeland model R-516 ½-hp. condensing unit operating on 110 and 220 volts is used, methyl chloride being the refrigerant.

The body is 80 in. long, 40 in. wide and 50 in. high, and is insulated with 3 in. of cork board. It is separate from the cab of the truck and can be used on any chassis, according to Mr. Hyatt.

The forward end of the body is used for the condensing unit, and also offers

(Concluded on Page 2, Column 2)

GAS ENGINE DESIGNED  
FOR TRUCK COOLING

MILWAUKEE—To provide motive power for compressors installed on refrigerated trucks, the Briggs & Stratton Corp. of this city has just announced a new automatic gasoline engine, designed especially for truck refrigeration. The new engine is built to be used with any of the standard makes of condensing units, according to its manufacturer.

The single-cylinder motor is rated at 3-hp., weighs 140 lbs., and is quite compact, the announcement states. It is automatic in that when the temperature of the refrigerated compartment rises to a designated maximum, a thermostatic control energizes the circuit of the 6-volt starting motor which operates from the ignition battery.

As the starting motor begins to turn over the engine, an electric choke is applied automatically, and as the engine starts and warms up, the choke is thrown out. The choke operation is regulated by the heat of the exhaust gases.

When the motor gets up to speed, a governor-operated clutch connects the motor with the compressor, and refrigeration

(Concluded on Page 2, Column 4)

DETROIT—Stopping here for a few hours on its return trip to Los Angeles, which it left about a month ago for an eight-day transcontinental trip to New York City, the large Frigidaire-refrigerated General Motors truck of the Southern California Freight Lines, Ltd., attracted considerable attention from the truck and refrigerating engineers who gathered to see it.

The trip was made as a test run to determine the feasibility of operating a transcontinental refrigerated truck, according to Col. J. D. Davis, public relations counsel for the transport company, who accompanied the truck much of the way. The truck carried approximately six tons of California citrus fruits, avocados, figs, grapes, and other fruits and vegetables from Los Angeles to New York, maintaining a temperature of 45° F. or less all the way. Frozen rabbits were stored against the coils where lowest temperatures existed.

Connected to the rear of the truck was a trailer carrying a load of miscellaneous articles, such as Christmas cards, wearing apparel, cosmetics, seeds, soap, and automobile and aeroplane parts.

The refrigerated truck compartment measures 12x8x7½ ft., and is insulated with 4 in. of Dry-Zero. Two large swinging doors at the rear provide access to the cold storage, while the Frigidaire condensing unit and Novo gasoline engine which drives it, are located in a lateral compartment near the front of the truck. The body was built by the Hammond Lumber Co. of Los Angeles.

Approximately 260 ft. of 1-in. iron pipe, half on each side of the refrigerated storage compartment, cool the body.

Directly behind the drivers' compartment

(Concluded on Page 2, Column 5)

YORK MACHINE COOLS  
NETOP LUNCH ROOM

PROVIDENCE, R. I.—The Netop Lunch Room, 105 Washington St., here has just purchased an air conditioning system cooled by a York 4x4-in. self-contained unit, driven by a 10-hp. motor. This refrigerating unit is installed in connection with a dry type unit cooler manufactured by the York Ice Machinery Corp.

The equipment can handle 6,000 cu. ft. of air per minute, distributing it by ducts. The air conditioner is located on a balcony at the rear of the restaurant. Ducts run from this conditioner to the front of the restaurant with openings near the ceiling at the rear and at the front. The equipment is started and stopped manually.

The refrigerating equipment and the unit air conditioner reduce the temperature of the air 10° below the outside temperature and maintain a relative humidity of approximately 50 per cent.

The air motion and the air circulation in the restaurant are so designed that a plus pressure is maintained in the dining room, thus forcing cooking odors out of the restaurant and preventing dust from entering the front door.

This is the first job of its kind in Providence and not only has resulted in a great deal of publicity for the installation and the restaurant, but has increased the business of this restaurant 30 per cent per month over the same months last year, according to its owners.

SAFETY COUNCIL TO STRESS  
ACCIDENT PREVENTION

CHICAGO—Accident prevention will be the theme of the Twentieth Annual Safety Congress of the National Safety Council, Oct. 12 to 15, in the Stevens hotel, here.

Meetings of the Refrigeration Section will begin Tuesday morning, Oct. 13, and will treat the subjects announced in the Sept. 23 issue of the Engineering Section of the News.

Among the 28 industries in which accident tabulations have been made by the National Safety Council, the refrigeration industry ranks number 24.

## Demonstrating Refrigerated Transportation



B. H. Hyatt, Copeland engineer, shows how the Copeland truck works.



## Progress Depicted in Refrigerated Trucks

### SWIFT COOLS TRUCK BY PASSING BRINE INTO SPECIAL COIL

CHICAGO—A new type of pre-cooler for meat trucks is undergoing experiment at the Swift and Co. plant here.

Brine from the Swift plant provides refrigeration for the new device, which was developed by M. P. Fugle of the Chicago Copeland Refrigerator Co., and F. R. Stuart, independent refrigerating engineer.

The brine, at 14° F., is pumped through a hose from the packing house into the "Radial" coil, as it is called, which is mounted in a box measuring 21x21x28 in. While the brine is being circulated through the coils, air in the truck is blown across the circular fins of the coils.

The blowing is accomplished with an electric fan located at the rear of the box. One hundred and twenty lbs. of coil are used. Fins are soldered to the coils.

The equipment may be in operation while the truck is being loaded, and takes approximately two hours to cool the truck box, with a 10,000-lb. load, down to a 31° F. temperature.

Records taken on a 200-mile trip, in which five stops were made, showed that the temperature inside the box underwent a gradual rise, reaching 68° F. by the end of the trip. The temperature outside ranged around 82° F.

Patents on the "Radial" copper coils and on the aluminum fins have been applied for by the inventors.

### Copeland's Truck Utilizes Brine Hold-over

(Concluded from Page 1, Column 4)  
an unrefrigerated storage space above the unit.

"The low side consists of a metal tank with a copper tubing evaporator coil submerged in a Eutectic solution that freezes hard at 20° F., and affords a hold-over capacity that provides refrigeration throughout the day. One day the unit was not operated for 23 hours," Mr. Hyatt says, "yet in spite of opening the doors an average of 75 times during the day, the temperature at night was 42° F."

"The plan is for this truck to be loaded at night, operated off the garage or warehouse electric service and be ready for the road in the morning," he explains. The refrigerating machine is not run during the day.

Mr. Hyatt reports that he took the truck off the electrical service at 8 a. m. with 32° F. in the storage compartment, and after being on the road all day, serving soft drinks and fruits to the rest of the men in the caravan, at 9 o'clock that night the truck still had a temperature of 42° F.

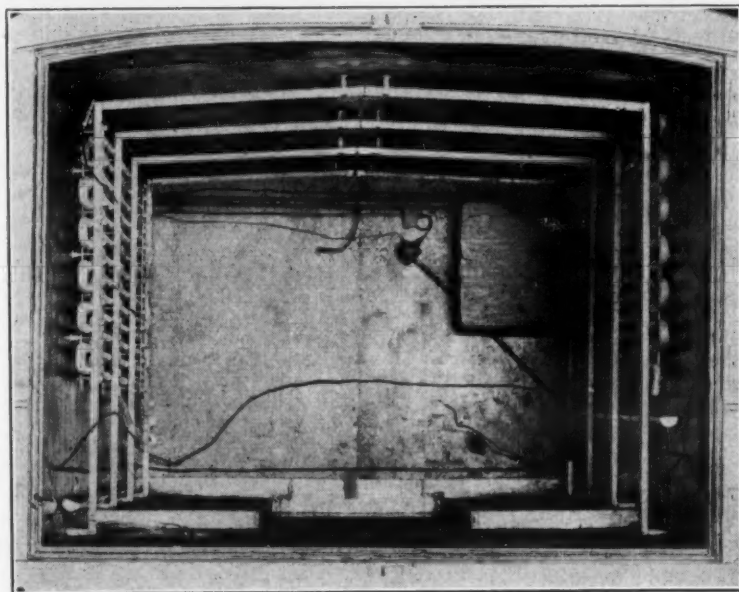
On occasions the thermometer rose to 48° F. after the door was open for a long time; after closing the door for a couple of hours the temperature would go down to 38° F., the temperature before the door was open. Outside temperatures ranged around 80° F.

We had this truck out for 24 hours without running the condensing unit

and the temperature did not go above 45° F., he claims.

When operating at night the condensing unit is thermostatically controlled and runs about six hours. When operating the condensing unit, the compartment door is left open for circulation.

### Compartment Interior



Interior of Frigidaire truck, showing the one-inch pipe cooling coils on each side, and expansion valve on front wall.

### FRIGIDAIRE-COOLED TRUCK POWERED BY 6-HP. NOVO ENGINE

(Concluded from Page 1, Column 5)

ment are the engineers' quarters where a spring-mounted instrument board shows temperatures at 10 different points inside the refrigerated section, outside temperatures, humidities, motor and truck speeds, altitudes, brake temperatures, oil pressure, oil viscosity, trip mileage, and various other data which were regularly noted during the trip. The whole trip was carefully plotted on 95 charts, on which operating performances of the truck were recorded.

Five men comprise the crew of the truck: Lee Davies, Frigidaire engineer; J. G. Hawthorne, assistant engineer and relief driver; A. E. Elmore, test engineer; William Strike, General Motors Truck mechanic; and A. H. Keller, driver. Two bunks in the engineers' cabin provide sleeping accommodations for the men off duty.

The standard Frigidaire air-cooled condensing unit is driven by a 6-hp. Novo gasoline engine, connected directly to the compressor in the machine compartment. Average gasoline consumption was about two gallons per day, the drivers say. The refrigerating equipment operated about 55 per cent of the travelling time, according to the records.

The engine is hand-started from the side of the truck, and is stopped automatically by the thermostatic controls, when inside temperatures reach the predetermined low point. An engine fan and a condenser fan function in series force an air draft from one side of the compartment across the machines, and out through the louvers at the other side.

Temperature during the entire trip inside the food compartment never averaged higher than 45° F., nor dropped below 35° F., despite the range of outside temperatures, it was claimed. On one day during the trip the truck encountered temperatures as high as 125° F., and as low as 50° F. at night. In the Arizona desert, where the maximum of 125° F. was encountered, the Frigidaire equipment maintained an average compartment temperature of 45° F., the truck attendants report.

In order to make the Los Angeles-New York test run, special permits were obtained in several states, and a license was taken out in every state through which the truck passed. Time made on the run, which operators believe can be reduced, was 117 hours, about three days less than ordinary freight, but two days slower than fast express. Speed on the transcontinental trip averaged 23 miles an hour.

The 135-hp. General Motors truck is 52 ft. wide, and 10 ft. 6 in. high, and has 22 pneumatic tires on the road, with 20 wheels equipped with Bendix-Westinghouse air brakes. At 30 miles an hour the truck can stop within its own length.

### F. & S. BODY CO. DESIGNS TWO-TEMPERATURE TRUCK

DALLAS, Tex.—Two compartment refrigerated truck bodies, with different temperatures in each, have been designed by the F. & S. Body Co., here, for the Kraft-Phenix Cheese Co., which uses them for the delivery of mayonnaise, cheese, and other dairy products.

The front compartment, built for maintenance of 40° F. temperatures or less, is insulated with three inches of Dry-Zero, while the rear compartment has two inches of Dry-Zero, and maintains somewhat higher temperatures.

Truck walls are fabricated with "Presswood" for both inside and outside panels, while inside shelves are of natural finish cypress. Selected ash or oak is used for the frame construction of the bodies. Roofs are number eight white duck, treated with linseed oil, and painted aluminum. The door latches are chromium plated.

Refrigeration is provided by a Graham fin-type tank which accommodates either ice and salt or solid carbon dioxide. A drip-pan underneath the tank drains it when defrosting takes place.

### GAS ENGINE DEVELOPED FOR TRUCK COMPRESSORS

(Concluded from Page 1, Column 4)

eration is started. The compressor speed is kept at a constant speed by the governor arrangement.

Another automatic feature protects the unit in case of failure of the motor, as might happen, for example, if the gas supply is allowed to run out, the manufacturer points out. A time limit switch, thermostatically controlled, breaks the circuit on the starting motor in an emergency of this kind, and prevents the possibility of running down the storage battery.

Notice of such an occurrence is flashed to the driver by means of a signal light on the dash board, and the safety switch must then be closed manually before the motor can again be started.

An auxiliary electric motor is provided to operate the refrigeration unit in the garage. The gasoline motor and electric motor deliver power to the compressor through the same automatic power clutch, according to Briggs & Stratton engineers, so there is no changing of equipment when the time comes to switch from one type of power to the other. Each cuts in and cuts out automatically when in operation. A number of manufacturers have placed these gasoline motors in operation with various sized condensing units.

The Briggs & Stratton gasoline motor occupies practically the same space as the electric motor used for stationary installations, the manufacturer claims. The engine is of the conventional 4-cycle type, L-tread, air-cooled, many of which are now in use in water systems, electric light and like installations. It can be removed easily for servicing, the announcement claims.

### Metal Stampings Unit Bases and Guards

Household Refrigerator Metal Panels—Exterior or Inside Panels and Food Compartments. Louvered Panels—Special Traps or Panels—Water Cooler Panels.

MOTORS METAL MFG. CO.  
5936 MILFORD AVE. DETROIT, MICH.

### DRINKING WATER FAUCETS

for Refrigerators—Water Coolers  
New model now available for use on city water pressure



CORDLEY & HAYES  
147 Hudson Street New York City

### The Purest Sulphur Dioxide

## EXTRA DRY ESOTOO

Made by our exclusive patented process.

Pure, easy to handle, does not deteriorate.

Made expressly for refrigerating use. Analysis guaranteed to show not over 50 parts of moisture per million.

Carried in stock by our Agents everywhere. Write or wire us where we can serve you.  
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Fully Fabricated  
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Takes  
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Uniform  
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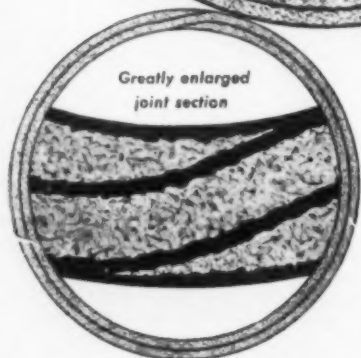
Small sizes up  
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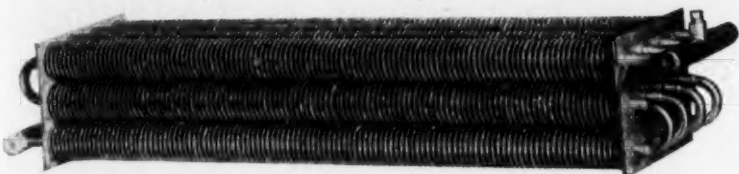
BUNDY TUBING COMPANY  
4815 Bellevue Ave., Detroit, Mich.

Greatly enlarged  
joint section





## Lipman's New Steel Coils



Lipman Discfin commercial cooling coils for ammonia use.

## General Refrigeration Co. Develops Evaporator Coils with Steel Pipes, Disc Fins

(Concluded from Page 1, Column 3) with the steel pipe when the units are galvanized, engineers point out. Fins are either 3 in. or 2 1/4 in. in diameter, depending on the model.

The evaporators are furnished in both header types in which all tubes are fed refrigerant simultaneously, and with the tubes all in series.

They are designed for use chiefly with ammonia, according to engineers of the company, although they can also be

used with methyl chloride, they say.

Machines can be operated at higher suction pressures than with iron pipe coils, they maintain, and cause less drying of the products being refrigerated. They are designed for a wide variety of applications where temperatures above freezing are required.

Walk-in coolers up to 12x12-ft. size can be cooled with the new coils, while display cases as long as 16 ft. can be fitted with standard Discfin coils.

## Armstrong Research Laboratory To Study Refrigerator Cabinet Construction

(Concluded from Page 1, Column 1) data are recorded on a wet and dry bulb recording thermometer centrally located, the values in various parts of the room being checked from time to time by standard thermometers to guard against any changes that might take place through changes in the arrangement of the boxes.

Inside the refrigerators, the temperatures are measured by thermocouples placed at stipulated points in the food compartment, and they are recorded by multiple point recording thermometers specially calibrated for the thermocouple wire used. A group of three copper constantan couples in series is used at each point to multiply the readings and insure greater accuracy.

The life test room is equipped with electric power, gas, and water lines so that any type of refrigerator or display cabinet may be tested. The arrangements are such that the efficiency of the mechanical units can be measured at will.

In testing a refrigerator, it will first be put through a rating test under the specifications as proposed by the American Society of Refrigerating Engineers or the American Standards association. The temperature and humidity of the room then will be raised to 100° F. and 90% respectively.

The refrigerator will be operated under these conditions for a definite period of time, a record of the inside temperatures being kept during this period. At the end of this period, the temperature and humidity of the room will be lowered to meet the specifications of the rating test previously made on the box and this test repeated.

The conditions then will be raised for another period in life testing, this cycle being repeated until a very definite low-

ering of the insulating value of the box is observed. This procedure will be the same for both ice and mechanical refrigerators.

In making the rating tests on mechanical refrigerators, the unit will be shut down and a piece of ice of known size and weight will be placed in the food compartment and the melting rate recorded. This test will be continued until the melting rate is approximately the same for two successive days, showing that the temperature gradients have come to equilibrium.

In making the life tests on mechanical refrigerators, the controls will be adjusted so as to obtain the same temperature at a point 5 inches from the floor of the food compartment directly under the center of the cooling unit. It is impossible to make the temperature at all points in the food compartment coincide with the same points in another box, so this one point is selected for comparison, Armstrong engineers indicate.

As it is impossible to obtain any such control in ice refrigerators, the procedure in this case will be to supply a full charge of ice at stated intervals, every 24 hours, or more frequently if it becomes necessary because of the extreme conditions in the room.

An accurate record of ice melting rate will be kept throughout the test, and this in itself will give an indication of the decrease in efficiency of the insulation. Nevertheless, the rating tests will be made at specified intervals and the ice melting rate compared to that at the higher temperature.

When the tests show that the overall efficiency of the equipment has been reduced to a predetermined point, the box will be dissected and a thorough examination will be made by experi-

## 'PAKICE' IS DESCRIBED BY VILTER ENGINEER

(Concluded from Page 1, Column 1)

ous, he showed, each turn of the paddles cutting a shaving of frozen brine or Pakice from .006 to .008 in. thick from the cylinder walls. The frozen particles are helped from the circumference of the cylinder to the center by the centrifugal force of the heavier water, and are then carried out the discharge end of the machine.

"Pakice is carried by hose or pipes to a storage bin which has a burlap bottom to permit the excess water to be drained off, leaving a white, snowy substance which can be handled by shovels or conveyors," Mr. Taylor said. All but about 8 per cent of the water drains off in a few hours.

Mr. Taylor believes that brine-ice made by the Pakice machine may find use in the cooling of refrigerated freight cars, and he has conducted several experiments at the Vilter laboratory to study its car icing possibilities. Brine-ice can be stored in tanks as it is produced, and fed by gravity or pumps into the bunkers of the refrigerator cars. After a trip in the car, he pointed out, the brine can be salvaged and re-frozen.

Pakice should also be useful in keeping milk cool until delivery, he declared, and showed pictures of a dairy operator shoveling it into a case of milk bottles, and pointed out how the substance sifts down around the bottles.

He finally outlined possible applications in air conditioning, showing how water could be cooled by passing through a bin of Pakice, and then be sprayed into the air-cooling booths.

Chairman O. A. Anderson of the Chicago section announced that Ian L. MacKenzie, architect, will address the next meeting of the group on "Marine Refrigeration."

## WEIR, WHELOCK NOW OWNS STANLEY BUSINESS

NEW YORK CITY—Weir, Wheelock Co., here, is now operating the electric refrigeration business recently purchased from Stanley & Patterson. Several standard makes of cabinets are used by this company with Iceberg condensing units. Sales are made through dealers as well as through apartment house builders.

enced engineers who will analyze each component part to determine the points where heat leakage occurred and the reasons for the leakage.

At this stage the equipment will be retested, if it is decided that an improvement can be gained by that step. Or rebuilding of the entire box may be decided upon. This alternate testing and rebuilding will be continued until the engineers believe they have achieved the proper method of constructing and insulating each piece of equipment.

Refrigerating engineers and refrigerator manufacturers interested in co-operating with the Armstrong research laboratory in making tests of their equipment to determine the efficiency during a lifetime of normal service may arrange for these tests.

## Check this capacitor-motor with the perfect refrigerator motor



## G-E CAPACITOR-MOTOR TYPE KC

Here are the specifications of a perfect refrigerator motor:

1. High torque in starting and pull-up, and high maximum torque
2. High efficiency, resulting in lower operating costs
3. High power-factor
4. Unusually quiet operation
5. Reliable operation for long periods

**T**HIS capacitor-motor, the General Electric Type KC, meets these specifications perfectly. It is the outstanding drive for the home refrigerator.

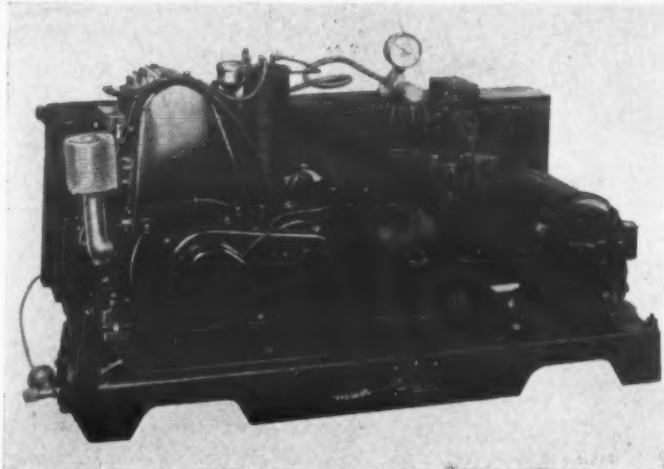
In addition to this complete capacitor-motor power unit, General Electric also has available a complete line of fractional-horsepower motor parts for general use in direct-connected refrigerators in which the motor parts may be subjected to the action of the refrigerant. These motor parts, consisting of stator and rotor, are available in horsepower ratings of 1/10, 1/8, 1/6, 1/4, 1/3, 1/2, and 3/4 hp. They are intended for mounting directly in the compressor unit.

Why not ask your nearest G-E office to give you complete information about these dependable, time-proved products — about the complete line of G-E fractional-horsepower motors for every need?

## For Low-Cost TRUCK REFRIGERATION

### BRIGGS & STRATTON ANNOUNCES A TRULY AUTOMATIC independent gasoline motor drive

Mechanical refrigeration for trucks is more economical and more reliable than any form of ice—actual figures prove it. And now the problem of low first cost has been solved by Briggs & Stratton with a single cylinder, 4-cycle, air cooled gasoline motor, incorporating new, proven features that insure positive, safe, automatic operation of any standard refrigerating unit. Starting is controlled thermostatically by the refrigeration temperatures; a governor operates the clutch that connects motor to compressor after the motor is up to speed; compressor speed is kept constant mechanically without the uncertainties of voltage regulation found in other systems. An auxiliary electric motor is provided for operation in the garage. The installations already in service such as the one illustrated, have shown exceptional economy and reliability. For full details write



### With Many Outstanding Advantages

1. All the characteristics of a full electric installation at a fraction of the cost.
2. Entirely independent of the truck engine, eliminating need for generator and voltage control.
3. The refrigerating unit in which this gasoline motor is installed becomes readily removable to another truck while truck is being serviced.
4. Positively maintains the low temperatures needed for transportation of quick-freeze meats, dairy products, etc.
5. Electric choke, automatically operated, insures immediate starting in all weathers.
6. Same pulley drives the compressor from either gasoline or electric motor — a space-saving feature.
7. Motor is 4-cycle, single cylinder, air cooled, weighing only 140 lbs. complete, yet delivers 3 H.P.
8. Especially designed to fit all modern makes of refrigerator units.

**BRIGGS & STRATTON CORP.**  
MILWAUKEE WISCONSIN

GENERAL  ELECTRIC



## ARMCO IRON MAKES EXECUTIVE CHANGES

MIDDLETOWN, Ohio—W. W. Sebald, vice president in charge of distribution for the American Rolling Mill Co., announces the appointment of R. C. Todd as assistant vice president of the company. Mr. Todd formerly was assistant general sales manager. His new duties will involve special work in connection with the company's sales activities.

Joining the American Rolling Mill organization in 1900, Todd rapidly progressed from office boy to manager of the Detroit sales district. In 1924 he was recalled to the home office to become assistant general manager of sales.

H. M. Richards, manager of Armco's Cleveland sales district, had been appointed assistant general manager of sales. He will return to the home office

in Middletown. Mr. Richards has been an Armco man since 1913, entering the company's employ as a clerk in the order department.

Foster E. Wortley has been appointed to succeed Mr. Richards as Cleveland district manager. He is at present assistant district manager of the Pittsburgh office, and has been connected with the sales division of the company since 1912. O. L. Conley has been appointed assistant manager of the Cleveland district.

## MARBURY INVENTS CONTROL WITH FOUR FEATURES

MEMPHIS, Tenn.—Thomas K. Marbury of this city has devised a refrigeration control which he claims will accomplish the four operations of temperature control, quick-freezing control, automatic starting when defrosting is completed, and overload control to stop the machine if the door is left open.

## ENGINEER URGES USE OF GOOD CUTTING OIL

By W. F. Schaphorst, M. E.  
Newark, N. J.

ON ACCOUNT of the large quantity of pipe used in some refrigerating plants, the kind of cutting oil used in cutting pipe threads is fairly important. Below are the results of some actual tests on cutting oils.

No. 1 costs 29 cents per gal., while No. 2 costs 82 cents per gal. from the manufacturer.

The figures below give the number of pipes threaded while using a full drum of each of these cutting oils, also the percentage of good pipe and the percentage of bad threads. It is interesting to note the number of die changes in the two oils.

### Cutting Oil No. 1

	Pipe	Ends
Pipe Threaded	102,676	205,352
Good Pipe	90,881	181,762
Bad Threads	11,795	23,590
Die Changes, 816		
Cuts per Die	125	250
Good Pipe per Die	111	222

### Cutting Oil No. 2

	Pipe	Ends
Pipe Threaded	133,279	266,558
Good Pipe	128,042	256,084
Bad Threads	5,237	10,474
Die Changes, 375		
Cuts per Die	355	710
Good Pipe per Die	341	682

Thus, the higher quality of oil produced only 3.93 per cent of bad threads, while the lower quality oil resulted in 12.87 per cent of defective threads.

These tests indicate that the first cost of a cutting oil is not of much importance. The important thing is quality. Use a quality oil and the ultimate cost will be lower. Low ultimate cost is what we should always seek, rather than low first cost.

## 3,000,000 Lbs. of Copper Used Annually in Air Conditioning

NEW YORK — "Weather manufacture," the new air conditioning industry, is now requiring upwards of 3,000,000 lbs. of copper annually for construction of necessary apparatus, according to a survey of the field just completed by the Copper & Brass Research Association.

"Air conditioning," the survey continues, "has recently passed beyond the stage of industrial acceptance alone. In the past three years it has made rapid strides in the field of theaters and department stores. It is now being introduced in hotels, public buildings, commercial shops, and office buildings, and is being adapted to railroad cars.

### Looks to Residence Cooling

Its next forward step, and largest potential market, will be in private residences, the survey predicts. "Leading heating and ventilating engineers look to a day, perhaps within five or 10 years, when it will be as common to provide cooling in summer and year-round control of humidity in homes as it is to provide winter heating today. It is in the residence and apartment field that the largest potential market for the use of copper and brass is expected.

"Year-round air conditioning and cooling systems are expected to supplant present winter heating systems to the extent that electric and gas refrigerators have succeeded ordinary ice-boxes.

"Because of moisture in the humidifying process, rust-proof metal is essential in various parts of air conditioning apparatus," the survey claims.

"Copper finds use as louvers, screens, coils, scrubber and eliminator plates, float valves, washers, ducts, compressors, tubing, wiring and similar parts. Brass appears as spray nozzles, piping, supporting frames, valves, atomizers and other integral parts.

"In the industrial field it is estimated that about 3,250 plants in some 200 industries are equipped with modern air conditioning. In the field of human comfort there are over 400 buildings that have installed large central-station systems. The number of unit conditioners and smaller systems for individual offices and homes has reached several thousand. Smaller air washers and humidifiers operating either independently or in conjunction with furnaces are in excess of 25,000.

"About 300 theaters are already equipped with air conditioning apparatus. Of the 14,000 theaters in the United States, at least 2,500 are deemed sufficiently large to warrant installation of complete air conditioning apparatus, and among the other 11,500 there is a large potential field for the sale of unit conditioners.

### Department Store Field

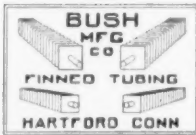
"So far, about 25 installations have been made in large department stores and this field is believed to offer a large potential market. There are from 75 to 100 retail stores now using air conditioning installations.

"In the railroad field the Baltimore & Ohio has taken a forward step with completely air-cooled trains. About 30 of the company's cars have been thus equipped and others are being added weekly at present. In some types of railroad units from 550 to 650 lbs. of copper are required per car.

"All of the air conditioning systems now installed in theaters, buildings, trains, and even in certain industries," concludes the Copper & Brass survey, "constitute an invaluable advertising force for the air conditioning industry. Public acceptance for residence systems will come through daily contact with the larger systems already installed."

## CONDENSERS STANDARD SIZES OR TO YOUR SPECIFICATIONS FINNED TUBING

FOR BOTH HIGH AND LOW PRESSURE SYSTEMS



IN COPPER, BRASS, ALUMINUM OR STEEL

THE BUSH MFG. CO.  
HARTFORD, CONN.

W. H. MARK HANNA, 6-247 General Motors Bldg., DETROIT, MICH.  
REFRIGERATION APPLIANCES, CHICAGO - VAN. D. CLOTHIER, LOS ANGELES

# Write for this important bulletin!

Bulletin 163, herewith illustrated, should be in the hands of everyone interested in motor-driven appliances—whether engineer or salesman, manufacturer or distributor. » » » It illustrates and describes in detail Wagner's method of silencing motors intended for locations where sound of mechanical appliances is objectionable—a method that includes among other things (1) rubber-cushioning the base and governor weights, (2) skewing the rotor, and (3) lifting brushes automatically. » » » Wagner rubber-mounted



motors are truly silenced, designed to meet users' demands for ultra-quiet motor operation. » » »

Sign and mail this coupon. No obligations involved.  
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6400 Plymouth Avenue, St. Louis, Mo.  
Please send copy of Bulletin 163 on Wagner rubber-mounted motors.

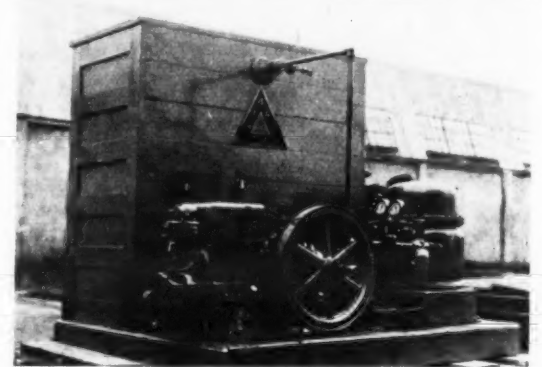
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# Wagner Electric Corporation

6400 Plymouth Ave., St. Louis, U. S. A.

Motors Transformers Fans  
Lockheed Hydraulic Brakes

## Making Ice Cubes for Chinese Army



Ice cubes from this special Lipman installation cheer the Chinese soldiers.

## CHINESE GENERAL ORDERS PORTABLE REFRIGERATOR

SHANGHAI, China—General Chiang Kai-Shek, present provisional head of the Chinese government, and chief of the field troops now suppressing bandits in South China, appreciates the potential comfort and good cheer stored within the small confines of an ice cube.

He recently ordered a portable ice-making machine from Andersen, Meyer & Co., Ltd., General Refrigeration Co.'s representatives of this city, so that he and his soldiers may have cool refreshing drinks wherever they roam.

The cabinet was constructed of teak wood, insulated with two inches of cork board, and containing two assemblies of American Radiator cooling units, three pans wide, and offering a capacity for freezing ice cubes in 30 trays. The cabinet is 4 ft. wide, 2 ft. deep, and 4 ft. high.

Refrigeration is furnished by a Lipman model 61 condensing unit, belt-driven by a 1½-hp. kerosene engine. The whole equipment is mounted on a common base, 4 ft. by 5 ft., so that it may accompany the military forces.

Inasmuch as the equipment will be

called on to operate in localities where water under pressure is not available, a 1-in. type C Worthington centrifugal pump has been belted to the kerosene engine, and a 25-in. length of ¾-in. hose has been connected to the suction side of the pump. The hose has a foot valve at one end, so that any convenient pond or creek may supply the necessary condensing water.

## NINE R. & H. RESEARCH MEN MOVE TO NIAGARA FALLS

NIAGARA FALLS, N. Y.—Nine research engineers of the Roessler & Hasselbacher Chemical Co., Inc., have been transferred from the Perth Amboy plant to the local factory within the past three months. They are Dr. Sterling Temple, Dr. B. S. Lacy, Dr. A. M. Muckenfuss, Dr. J. F. Reichert, Dr. C. J. Wernlund, A. T. Hawkison, A. W. Rudel, J. M. Wainscott, and H. A. Bond.

Other transfers to the Niagara Falls plant include those of P. M. Paulson, patent specialist from Perth Amboy; J. L. Ressler, entomologist from New York City; and M. Marean, librarian from Perth Amboy.

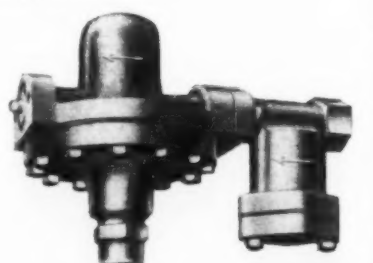
## POLAR AMMONIA EXPANSION VALVE

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The best refrigerating machine ever built is only as good as the expansion valve used.

Many inferior expansion valves have condemned some of the best installations. Use of POLAR PRECISION BUILT AMMONIA EXPANSION VALVE will eliminate considerable expense.

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# Engineers' Views on Cabinet Insulations, Humidities

## Claims Electric Refrigerators Need Higher Dew-points, Exterior Seals

By R. T. Brizzolara, President  
R. B. Engineering Corp., New York City

SOME of the statements made in the September issue of REFRIGERATED FOOD NEWS concerning the technical problems of waterproofing insulation can be viewed from an entirely different angle. Particularly open to question is the statement that "it became evident that an electric refrigeration cabinet must be built a lot better than an ice box because of the greater variation between the outside and inside temperatures."

As a matter of fact it doesn't usually occur to the electric refrigerator manufacturer that he is working with a dew-point of about 18° F., where in an ice box the dewpoint is 32° F.

This dewpoint is not related to the temperature being maintained in the box, excepting in that it is a measure of its drying-out capabilities on food, and the measure of the grains of moisture per cu. ft. of air in the box.

The lower the dew-point, the lesser amount of moisture in the box, and the greater this drying-out effect on the goods in the box. This explains why electric refrigeration sometimes dries out foods in a box—because of the low dewpoint temperature of the refrigerator elements.

### Ice Dew-point Fixed at 32°

In the electric refrigerator it is usually around 18° F. In an ice box the dewpoint is fixed at 32° F., which is the temperature of the refrigerating medium. The vapor pressure that corresponds to a dewpoint of 18° F. is .0458 lbs. per sq. in., whereas at 32° F. it is .0887 lbs. per sq. in.

If we consider the insulation in the best average refrigerators, electric or ice, we find that we have the cooled dry air isolated away from our insulation; there is no seepage of air around the insulation into the box.

On one side of our cork insulation, we have the temperature of the box, which, let us assume, is 50° F., with its corresponding dewpoint of 18° F. for the electric refrigerator and a corresponding vapor pressure in the box of .0458 lbs. per sq. in.

On the external side of our insulation we will have a room temperature of let us assume 80° F. and a dewpoint of 62° F. The vapor pressure of the air external to the box is .2654 lbs. per sq. in.

In our cork insulation we have a temperature gradient from 50° to 80°. For a definite distance into our cork from the inside of the refrigerator, we have temperatures existing below the "dew-point" of the external air, and consequently a continuous air infiltration into our cork insulation takes place, condenses its vapor in that insulation and causes the trouble.

### Seal Against Air Infiltration

One of the ways to solve the problem, of course, is to seal the insulation in such a manner that all air infiltration into it is impossible.

We have found that if greater attention be given to sealing the external areas of the box to prevent air infiltration and ventilate the interior of the box to the cork insulation space, our refrigerator elements will serve to dry out the cork.

The amount of ventilation required is very nominal, in fact nothing but perforated holes serve as a relief for the high vapor pressure in the insulation to find its way into the box where it will condense on our refrigerator elements.

What we are recommending is that air infiltration be prevented, as much as possible, from the external area of the box into the insulation, and advocating that there be some perforated connections between the insulation area and the internal volume of the box.

In our present refrigerator manufacturing methods the tendency is to accomplish the opposite result. We are not trying to utilize the "drying-up effect" of our cold elements to work on our insulation and thus keep it dry.

Most efforts to date are attempted to

maintain a high vapor pressure in the insulation, increasing condensation troubles. The chances are that if some of our refrigerator manufacturers would saturate their insulation well with moisture and put a box on test, ventilating the interior of their cabinets to the insulation space with some perforations, they will be surprised at the drying-out effect that will occur on their insulation.

The compromise solution for this whole matter will probably be first, the maintaining of a higher dewpoint in the electric refrigerator which simply means more cooling surface and higher back pressure; second, a sealing of the exterior of the box against air infiltration to a fair degree; third, a waterproofing of the insulation to a fair degree; and fourth, the introduction of some perforated connections between the interior of the cabinet and the insulation space to reduce vapor pressures.

These insulation troubles in question are as prevalent on good ice refrigerators if they are properly maintained with a supply of ice and no temperature rises are permitted. The electric refrigerator is continuously kept cold, and in fact, adjacent to the refrigerator elements the surfaces of the insulation is kept considerably colder than the box temperatures, making for still lower vapor pressures in the insulation and for a greater continuous rate of air infiltration as well as condensation.

It must not be thought that we are seeking a cooled insulation space. We wish to maintain its present temperatures or higher ones and drop the wet bulb temperature only.

### WISCONSIN FIRM TO START CABINET PRODUCTION

EAU CLAIRE, Wis.—Manufacture of a line of cabinets for electric and ice refrigeration is planned by a company formed by five La Crosse and Eau Claire business men who purchased the Eau Claire Cold Storage Corp.

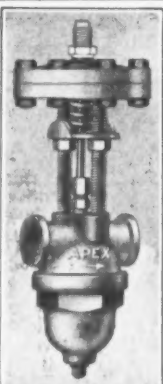
A. W. Koehn, general superintendent of the La Crosse Refrigerator Corp. for the past seven years, will hold a similar position with the new company.

Albert P. Funk, La Crosse, is president of the company, G. A. Sexauer, vice president, and Charles W. Churchill, Eau Claire, vice president of the old company, will be general manager and secretary-treasurer, respectively.

### APEX Automatic Refrigeration Specialties

Expansion Valves,  
Pressure Control  
Water Regulators,  
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Regulators, and  
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DIVISION OF  
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## G. R. LINDAHL URGES AIR MOTION STUDIES

By George R. Lindahl  
Commercial Refrigerator Mfg. Co.  
Los Angeles, Calif.

IT IS sometimes said that 90% of the faults, poor engineering in refrigeration, and the consequent food losses, can be traced to a lack of study of humidity and air circulation. The slightest difference in atmospheric pressure and temperature will cause air to move, so no air is stationary, since there is always vapor in the atmosphere. As air becomes warmer, it expands and gains moisture; as it cools below the saturation point, the moisture condenses.

At 100° F., a cubic foot of air can hold 19.79 grains of moisture, with a vapor pressure of 1.916 in., and a weight of 487 grains. If the same air is cooled down to 30 degrees below zero, the moisture in a cubic foot will fall to .12 grains, and the vapor pressure to .010 in. The total weight of this saturated air is 650 grains.

As the moisture is removed from the air by cooling, the air becomes heavier, and shrinks in volume. There are always two or more separate air currents, ascending and descending, following the lines of least resistance. One goes up, the other goes down, in a refrigerator or anywhere else.

Coil or room temperatures should be as close as possible for successful humidity control or air conditioning, and as the temperature increases, more coil area should be added. Even if it were possible to bring the coil and room temperatures to the same point, it would not be advisable because moisture

in the entering air would condense and deposit on the surfaces of the food, walls, ceiling, floor, etc.

Sufficient air movement should be maintained to carry the moisture to the coils, where it can be condensed and run off to the proper drain. Humidity causes foods to become sticky and slimy, and changes the color of fish. It will even cause the box to become moldy.

### Lower Temperature, Less Moisture

As the temperature drops, the air will hold less moisture. When the door is opened in a refrigerator at 35° F. which has 1.9 grains of moisture, 7.5 grains of moisture enter, resulting in 5.6 grains per cu. ft. Unless the coil is cold enough for the moisture to condense on it, this dampness goes on the food.

As the entering air was 75° F. with 80% relative humidity, it brought in 7.5 grains of moisture per cu. ft. As it passes over a zero-temperature coil, however, it loses 7.5 -.54, or 6.86 grains of moisture for each cu. ft. of air. When the air loses this moisture, it becomes heavier and descends, picking up moisture from the foods and walls. As it absorbs this moisture its temperature increases, building up a greater vapor pressure. When it again returns to the point of lowest vapor pressure, it becomes lighter, rises, and builds up a circulating cycle.

### Dehydration at Lower Temperatures

With a 35° temperature difference, a complete cycle is completed practically every minute, although if the vapor pressure is reduced, the air will circulate much slower. Where too low a coil temperature exists, dehydration in 24 hours of fresh perishables can be as high as 5% by volume. Dehydration depends on the speed of circulation, which

in turn depends on the difference in temperature between the coil and the room or box being cooled.

At the other extreme, where the coil is at too high a temperature, the air circulation will be sluggish and slow, and will not pick up the excess moisture and carry it to the coil—leaving it instead, on the food.

A proper balance can be struck, which will move the air at just the right speed to take up excess dampness. The location and size of coils depend on the kind of service, insulation, and type of construction.

## CENTRAL BRASS PRODUCTS HAVE NON-ROTATING STEMS

CLEVELAND—Two features characterize all Paragon valves made by the Central Brass & Mfg. Co. here, for use in electric refrigerators and water coolers, namely the non-rotating stem and the patented handle adjustment known as the Samson lock. In addition to standard faucets and stops which this company developed for refrigeration purposes about two years ago, bubblers and glass fillers have more recently been designed with the Paragon self-closing principle.

Paragon valves were originally furnished to the plumbing industries, and are regarded as one of the first valve types to embody the ball bearing self-closing faucet. The non-rotating stem prevents grinding action on the seat washer, while the Samson lock provides a simple handle adjustment with the use of a pair of pliers.

Central Brass engineers are now working on pressure regulating valves, strainer valves, and other new products for electric refrigeration use.

## A Prominent Refrigeration Engineer\* Says - - -

"A decided advantage of the STREAMLINE assembly lies in its light weight, so that when using it on lines which are subject to vibration, the strains, resulting from the vibration, are reduced to a minimum. Furthermore, the fact that the line is not bent or distorted when forming a joint prevents crystallization and breakage even when vibration is present.

"STREAMLINE is usually specified whenever an installation is wanted which will be absolutely leakproof.

"Because water cannot seep into this patented joint, afterwards to expand by freezing and crack the fitting, STREAMLINE is called for wherever condensation, seepage and freezing might break a threaded joint."

Most refrigerator manufacturers use Mueller STREAMLINE copper pipe and fittings, some use it exclusively.

If you are not thoroughly familiar with the advantages of STREAMLINE products in a refrigerator installation, write or wire at our expense.

We also manufacture a complete line of valves and fittings and can supply your every requirement.

## Mueller Brass Co.

PORT HURON, MICHIGAN

MUELLER BRASS CO. OF CANADA, LIMITED,  
TORONTO, ONTARIO

Three Generations of Brass Makers



STREAMLINE Coupling  
Copper to Copper  
Patent 1,770,852. Patent 1,776,502.  
Other patents pending.



STREAMLINE Tee  
Copper to Copper to Copper  
Patent 1,770,852. Patent 1,776,502.  
Other patents pending.



STREAMLINE Cross  
Patent 1,770,852. Patent 1,776,502.  
Other patents pending.

\*The name of this engineer will be furnished upon request.

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### Refrigerated Trucks

THE advent of mechanically refrigerated trucks, which both refrigeration manufacturers and perishable food carriers have been anticipating for some time, appears not far distant, judging from the activities of the various interests working on this development.

Two test trucks, built for different types of refrigerated transportation service and employing different cooling principles, recently completed demonstration trips to prove their reliability.

One truck was driven from Los Angeles to New York City by a western operator of interurban motor trucks who wanted to determine the possibilities of establishing long-distance refrigerated transportation services with auto trucks. According to the elaborate temperature records kept by the test engineers on the truck, satisfactory low temperatures were maintained throughout the wide range of hot and cold, dry and damp weathers encountered.

### Gas Engine Drive

The refrigeration equipment in this large capacity truck was driven by a gasoline engine, which, the records indicate, did not consume an unreasonable amount of fuel. From a mechanical standpoint, this test run appears to have been satisfactory.

Whether or not establishing long-distance refrigerated transportation schedules with motor trucks is a profitable venture still depends upon other factors, such as the cost of competing with refrigerated rail services, and the competitive time element.

Built for a different type of refrigerated transportation was the small delivery truck which just finished a demonstration tour of the state of Michigan. Store-to-store delivery of ice cream and meat requires a truck that will keep temperatures in spite of the heat introduced when the door is opened nearly 100 times a day. Air temperatures are bound to rise each time the door is opened, and the refrigerator's job is to reduce this temperature increase soon after the door is closed again.

The Michigan truck used a Eutectic brine solution in a tank with a considerable hold-over capacity to accomplish this end. Refrigeration was added only in the garage at night, then by connecting the electric refrigeration unit to the central station power.

### Brine Hold-over Used

In this type of truck, refrigeration is stored in the brine tank, so that by morning the truck is prepared to withstand summer temperatures and numerous door openings without operating the machine during the day.

According to the refrigerating engineer who accompanied this truck on its test trip, the door was opened an average of 75 or 80 times a day, and each time the inside air temperatures rose about 10° F., and were shortly brought down after the door was closed.

One of the most difficult refrigeration problems in the design of refrigerated delivery trucks has been to remove the heat admitted when the doors are opened.

Heat of the past summer impressed ice cream manufacturers with the need for better cooling methods for their delivery trucks. Many of them

complained that ice cream got soft and slushy by the time it was delivered to their customer's cabinets.

Mechanical refrigeration has been regarded as one solution, and during the past few years, several ice cream suppliers have tried it, with varying success. Now that the designing technique and wider experience of engineers in refrigeration manufacturing organizations are being aggressively applied to refrigerated truck development, progress is more apparent.

In addition, it is significant that future suppliers of parts and materials are now offering equipment for refrigerated trucks. Gas engine manufacturers have designed machines particularly suited to the requirements of compressors of refrigerated trucks, other companies have devised power take-offs to transmit the power of the truck engine to the refrigeration equipment, while auto truck body builders have built a goodly number of insulated bodies for use with various types of refrigeration.

### On Our Bookshelves

#### "MATERIALS HANDBOOK"

Author: George S. Brady. Publisher: McGraw-Hill Book Co., Inc., 370 Seventh Ave., New York City. Pages: 588. Price: \$5. Date of publication: 1931 (second edition).

TO THE product engineer and the man who is continually running into unfamiliar names of materials in modern industry, the second edition of Brady's "Materials Handbook" should be a valuable help, for it lists alphabetically about 2,400 substances with a brief statement of their composition, other names, properties, and common uses.

It is a convenient dictionary of industrial materials. The table of contents lists the following general classifications: abrasives; bearing materials; brasses and bronzes; building materials; corrosion-resistant alloys; cupro-nickel alloys; fabrics, leathers, and organic materials; fibers; finishing materials, pigments, solvents, etc.; foundry alloys and materials; heat-resistant alloys; heat-treating materials; industrial and plating chemicals; iron and iron alloys; light metals and alloys; lubricants, oils, and greases; metal groups, and elements; minerals; military chemicals and commercial explosives; molding materials; resins, gums, and waxes; ores; refractories and heat insulators; steels and tool materials; woods; and white metals.

Specific materials appear in the volume under their technical or trade names, with occasional cross-references when a material is known by more than one name.

The descriptions give the important technical qualities of each of the materials in such a way that the designing engineer can probably tell from a quick reading whether or not a substance is suitable for any particular purpose.

Some of the newer products about which little was known when the first edition was published two years ago, are explained in this edition. Much of the information presented was gathered over a period of time by the editors of McGraw-Hill technical magazines who cooperated with Mr. Brady, managing editor of *Product Engineering*, and author of the book.

### GLEANINGS FROM RECENT PERIODICALS

COMFORT-COOLING for office buildings, public places, and even for homes is one of the probabilities of the near future and when it comes another large intermittent market for refrigeration will develop. Along this line a most interesting demonstration was given during the present summer.

A large ice company was approached by the trustees of a church on the matter of cooling the church edifice for mid-summer Sunday services. Investigation developed the fact that the church was heated in cold weather by forced hot air, a large air duct coming from the heating plant being divided into smaller ducts which carried the air to all parts of the church. In this large air duct a trap door was cut and a low platform built on the inside. This platform kept huge ice cakes up where the air could touch all sides.

When this platform was loaded with ice and the fan on the air system started it was found that it took but an hour or so to bring the temperature in the church down from 9 to 12 degrees. The system was used on all the hot Sundays, with great satisfaction to the church members. Approximately four tons of ice, at a wholesale cost of \$5 a ton, were used each Sunday, so that the total cost was only about \$20 for each of the hot Sundays on which the system was used.—September, *Trade Winds*, published by the Union Trust Co., Cleveland.

#### Notes on Ammonia Receivers

LARGE receivers should be installed in all plants. This is a real safety measure which will enable the operating engineer to get capacity out of the plant, and if repairs have to be made he has ample room to pump out the parts of apparatus and store his ammonia. There are still many plants where receivers are too small and the engineer has to resort to getting empty cylinders and withdraw the ammonia from the plant in order to make repairs. Ammonia should not be withdrawn from a plant into cylinders without weighing the ammonia placed in each cylinder. Overfilling these cylinders is very dangerous.

Ammonia receivers, or the storage tank for liquid ammonia coming from condensers, should be equipped with gauge glasses to indicate the amount of ammonia in the plant automatic stop valve controlling shut-off in case of glass breaks. This will enable the operating engineer to hold a liquid seal in the plant at all times which is one of the most important factors for production and safety.—*Seibel's Technical Review*, July.

## An Editor on Wheels

Stories of Interesting PLACES in the Refrigeration Industry

By GEORGE F. TAUBENECK

### Evansville, Ind.

It isn't every day that a columnist has so distinguished a contributor as Col. Frank E. Smith, president of Servel, Inc. Nor is it every day that the editor lets somebody else write his stuff for him.

In fact, this is the first time anybody else's ideas on towns and cities have ever appeared in "An Editor on Wheels."

Last week we heard Col. Smith make a few pertinent and amusing remarks anent the city of Evansville and the state of Indiana. We asked him to give us some of those remarks in tangible form for this kolyum. And here they are:

### Col. Smith Says:

Indiana is a great state. It is the home of "dunking" and the center of population in the United States. It is renowned for its authors, its statesmen and its orators.

It is reputed to have more insane people per capita in its hospitals than any other state in the Union. There may be some connection between its advantages and its troubles. Who knows whether the insane are disappointed farmers or talked-out statesmen?

Indiana was settled by hardy pioneers from Kentucky. In the old days just before the Kentucky families left their cabins to start across the river into Indiana, they would kneel and pray at sunrise and conclude with the statement: "Good-bye, God, we are going to Indiana."

Since that time many things have happened and many changes have come to pass, until today, according to my good friend, Senator James E. Watson of Indiana, a family now emigrating to Indiana in the present generation no longer prays to the Almighty for help, but says with unanimity "Good, by God! we are leaving for Indiana."

Evansville has always been a leader in Indiana's industry and politics. Usually Democratic, it went Republican in the last election.

Evansville contains the chief baby food manufacturer in the United States (Mead Johnson), and makes a leading refrigerator in which to preserve this product.

Evansville has also been a leader

for many years in the furniture business, and that includes radio cabinets.

In the old days Cook's Brewery made a beer unsurpassed either in this country or Europe. Now Cook's Brewery manufactures ice, while every Evansville housewife makes her own beer; and Evansville consumes more malt syrup today per capita than any other community in this country.

Take it from me, most of this Evansville home-brew is better than the "mule" served hereabouts, which has to be camouflaged by lime, sugar and ginger ale, to make it takeable, let alone palatable.

Evansville has an airport where you can drop in or take off. It also has a race track which, because of the vagaries of the Ohio River during flood stage, was transferred from Kentucky where pari-mutuals are legal and the "dogs" are not as fast as on the Whippet tracks.

Evansville boasts its location on the Ohio River—a changeable lass, depending upon the season.

In Summer the Ohio shows the passive yellow gold of her sandbars, and in Winter and Spring she shows an angry flood stream of mud color which covers flooded land with silt.

Indiana runs to extremes of good or evil. She is at her best in her products of authors, orators and statesmen, and at her worst when taking the lead in the support of the Ku-Klux Klan.

You may not know it, but Indiana has produced some great orators, including Albert Beveridge, Charles Bookwalter, James E. Watson, and Harold Van Orman.

My experience leads me to believe that most Indians are optimists.

I don't mean the kind of an optimist who thinks his wife has quit smoking cigarettes because when he returns home unexpectedly he finds cigar butts scattered all about the house. Nor the kind that believes the whiskey is just off the boat because his Bootlegger says so.

I mean the kind of an optimist who believes that if his salesmen take a little of the shine off their pants and put it into their eyes they will sell more goods.

### KNICKERBOCKER STAMPING CO. ACQUIRED BY FRICK

WAYNESBORO—The Frick Co., here, recently purchased the Knickerbocker Stamping Co., Parkersburg, W. Va., manufacturers of ice can, multiple can grids, aerating systems, and other ice accessories.

The Knickerbocker Co. will be operated as a separate factory, with its own board of directors, factory and sales organization, according to the announcement.

### Letters From Readers

#### Likes this Section

The Great Atlantic & Pacific Tea Co. Philadelphia, Pa.

Editor:

I have thoroughly enjoyed every copy of the News and frequently find back copies very valuable as reference. The addition of the Engineering Section was particularly pleasing to me.

I might add my vote to those subscribers who wish to see more news about commercial refrigeration of all types, and in particular, retail store ammonia equipment.

ROY L. STEPHENS,  
Operating Department.

### Majestic Engineers

Grigsby-Grunow Co.,  
Chicago, Ill.

Editor:

About 20 of the engineers in our plant would like to express interest in ELECTRIC REFRIGERATION NEWS, chiefly the Engineering Section.

CHARLES GASSER.

### BUFFALO SCHOOL ORGANIZED TO TEACH REFRIGERATION

BUFFALO, N. Y.—Instruction in electric refrigeration has been started in the Buffalo Technical Institute, with a 12-weeks' night school course and a six-weeks' day course. The course covers approximately 120 hours of laboratory instruction, according to W. H. Colestock, secretary.

The course will include practical work on the following machines: General

### Coming Events

American Gas Association, annual meeting, Oct. 12-15, Atlantic City, Kerwin R. Boyes, 426 Lexington Ave., New York City.

National Safety Council, annual congress, Oct. 12-16, Chicago, W. H. Cameron, 20 N. Wacker Drive, Chicago.

Institute of American Meat Packers, annual convention, Oct. 16-21, Waldorf-Astoria hotel, New York City.

American Hardware Manufacturers' Association, convention, Oct. 19-22, Chicago, C. F. Rockwell, 342 Madison Ave., New York.

American Society for Municipal Engineers, annual meeting, Oct. 19-23, Pittsburgh, C. W. S. Sammelman, 4359 Ludell Blvd., St. Louis.

National Association of Railroad Utilities Commissions, meeting, Oct. 20-23, Richmond, Va., James B. Walker, 270 Madison Ave., New York City.

International Association of Municipal Electricians, annual meeting, Oct. 26-30, Jacksonville, Fla., W. H. Harth, City Hall, Columbia, S. C.

Dairy Industries Exposition, Oct. 26-31, Atlantic City, N. J., Roberts Everett, 225 W. 34th St., New York City.

National Association of Practical Refrigerating Engineers, convention and educational exhibition, Nov. 10-12, Rice hotel, Houston, Tex., Edward H. Fox, 435 N. Waller, Chicago.

American Institute of Electrical Engineers, winter convention, Jan. 25-29, New York City, F. L. Hutchison, 33 W. 39th St., New York.

### CORINCO BRANCH ADDS LINE OF VICTOR PRODUCTS

HAGERSTOWN, Md.—Cork Insulation Co. branch at Seattle, Wash., has been appointed distributor for Victor Products Corp. in the northwest territory. The company succeeds Edwards Ice Machine & Supply Co. of Seattle and Pacific Asbestos & Supply Co. of Portland.

Electric, Kelvinator, Frigidaire, Norge, Copeland, Servel, Westinghouse, Leonard, Mayflower, and Mohawk. John Stubbs is in charge of the class work.

The curriculum includes the theory of food preservation, history of refrigeration, refrigerants, elementary electricity, motors, controls, commercial refrigeration, domestic refrigeration, service methods, assemblage, installation, maintenance and repair, and salesmanship, Mr. Colestock states.



## ARMCO CONCERT BAND GOES ON AIR OCT. 19

MIDDLETOWN, Ohio—The Armco concert band will be broadcast to an international audience this season, with the addition of short-wave station W8XAL to the transmitting system which includes also WLW's 50,000 watts at Cincinnati.

The first radio concert will be held on Monday night, Oct. 19, between 9 and 9:30 o'clock Eastern Standard Time. On that night the radio audience will hear George M. Verity, chairman of the Board of The American Rolling Mill Co., speak on the subject, "There can be no end to progress."

One of the special features of the broadcasting season will be the playing on each program of one of the competition numbers chosen for the high school bands in the different states by the Board of National High School Band contest.

The same selections will later be played by the various high school bands in their 1932 contests, and the interpretation of these contest competition numbers by a nationally-known musical organization is expected to prove to be of great help to these junior bandmen.

To cooperate in the development of better musicians among these youthful organizations, Frank Simon, conductor of the Armco Concert Band, John Phillip Sousa, Edwin Franko Goldman, and other famous bandmasters, have acted as judges and coaches in numerous State High School Band contests conducted in various parts of the country, and in the National contest recently held in Tulsa, Okla.

The broadcast season will extend over a period of 26 weeks, all programs being given at 9 o'clock on Monday nights.

### NEW FIRM DISTRIBUTOR FOR R. & H., GRASELLI, HARSHAW

GRAND RAPIDS, Mich.—Michigan Chemicals, Inc., a new company organized here with factory and laboratory facilities for the development and manufacture of chemicals for the metal finishing and chemical industries, has just been appointed Michigan distributor for the Grasselli Chemical Co., Roessler & Hasselacher Chemical Co., and the Harshaw Chemical Co.

J. C. Miller is president and treasurer of the new organization, while V. J. Twyning is vice president, and E. L. Miller is secretary.

### 3,000 YARDS DAILY OUTPUT OF NEW INSULATION

BOSTON—Approximately 3,000 sq. yds. of "Forest Fleece" insulation are now being produced by the Forest Wadding Co., here, according to officials of the company.

Forest Fleece is a new low-priced insulation recently offered to the electric refrigeration industry for cabinet application.

### B. F. STURTEVANT NAMES NEW BRANCH MANAGERS

BOSTON, Mass.—B. F. Sturtevant Co., here, recently announced the appointment of Walter S. Hunken as manager of its office in Greensboro, N. C., Philip Cohen as acting manager of the Cleveland office, and E. A. Engdahl as manager of the offices in Seattle, Wash.

### CONNER PLACED IN CHARGE OF MULLINS ENAMELING

SALEM, Ohio—Henry Conner, formerly of the Ferro Enamel Corp. in Cleveland, has been placed in charge of all porcelain enameling operations of the Mullins Mfg. Corp., manufacturer of the Mullins porcelain-on-steel evaporator.

## European Engineers



Dr. Ivan Kuprianoff (left), and Dr. Rudolph Plank, head of the Karlsruhe refrigeration laboratories, are studying American refrigeration progress.

### Plank, Kuprianoff Visit American Plants

DETROIT—Dr. Rudolph Plank, one of Germany's best known refrigerating engineers, and Dr. Ivan Kuprianoff, Russian engineer, spent the past three weeks visiting Kelvinator, Universal Cooler, Copeland, and various other refrigeration factories in this city. Dr. Plank and Dr. Kuprianoff plan to visit refrigerating engineers and factories in Chicago and Milwaukee next, and probably other interesting refrigeration establishments where they can see American refrigeration methods before returning to their European work.

Dr. Plank's studies cover such subjects as food storage and quick-freezing, machine design and analysis, and the thermodynamics of refrigerants, many of which were made in the refrigeration laboratory of the University of Karlsruhe, Karlsruhe, Germany.

The Karlsruhe refrigeration laboratory, which Dr. Plank heads, was established six years ago to study the field of production and utilization of low temperatures. It is called the Kaeltetechnisches Institut. More than 20 refrigerating machines of both compression and absorption types are installed in the research laboratory, Dr. Plank explains, with the instruments and controls necessary to demonstrate their construction and operation.

"A second section of the laboratory," Dr. Plank says, "is devoted to physical and chemical research, such as the determination of physical properties of new refrigerants, investigations in corrosion, studies in heat transfer, and other refrigeration problems."

Food investigations and quick-freezing studies are made in the third section of the laboratory. Here, also being considered in research, are questions of the growth of bacteria and moulds, prevention of discoloration and dehydration, and determinations of proper temperature and humidity conditions for the cold storage of different foods.

"A list of publications of the research work done in the laboratories will be sent on request," Dr. Plank says, "by addressing the Kaeltetechnisches Institut, Kaiserstrasse 12, Karlsruhe, Germany."

## Sales Changes Made By Westinghouse

EAST PITTSBURGH, Pa.—The industrial sales department of the Westinghouse Electric & Mfg. Co. has been reorganized under the direction of O. F. Stroman, industrial sales manager. The reorganized department is composed of units grouped according to the main classifications of industry.

Two assistant sales managers and 14 divisional managers have been appointed. Bernard Lester and C. B. Stainback have been appointed assistant sales managers. Mr. Lester will have general charge of directing from headquarters the development of business with industrial users of electrical equipment. Mr. Stainback will have charge of apparatus applying to these industrial groupings.

Under Mr. Lester have been created five industry divisional classifications with the following in charge: G. E. Stoltz, manager, mining and metal working electrification division; G. D. Bowne, manager, general mill electrification division; J. W. Speer, manager, machinery electrification division; E. E. Bremer, manager of the appliance electrification division; and E. F. Mead, manager, general industrial resale division.

Mr. Bremer, manager, appliance electrification, was born and educated in Chicago, attending the Lewis Institute. He has been with the Westinghouse company in sales work since 1918, and for the past five years has been manager of the small motor section of the northwestern district, with headquarters at Chicago.

Mr. Bremer's duties include the development of business with the manufacturers of electrically operated appliances used in the home, office, store, service station, and shop.

## STRIKING TRICKS DONE BY HAWKINS, MANNING

LAKE GEORGE, N. Y.—Members of the New York State Publishers association, gathered here for their fall meeting in September, were introduced to red-hot coals that were cold, and were shown brilliantly-glowing minerals and chemicals that quickly became dull and lifeless when removed from in front of a vacuum tube.

The striking experiments were performed by L. A. Hawkins and E. L. Manning of the General Electric research laboratory with a new cathode-ray tube produced by Dr. W. D. Coolidge and George Hotelling of the laboratory.

The tube, in principle like the large, heavy-duty cathode-ray tubes announced by the laboratory a few years ago, is small and compact—so small, complete with all its equipment, that it can be carried with ease and used on a small table. Although operating at 70,000 volts, it uses ordinary 110-volt house supply, a small semi-fluid immersed transformer producing the necessary high voltage.

The tube itself measures only 12 in. long, the bulb being 3 1/4 in. in diameter.

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# LATEST PATENTS ISSUED IN REFRIGERATION

## ISSUED SEPTEMBER 8

(Concluded From Last Issue)

1,822,788. PROCESS AND APPARATUS FOR PRODUCING SOLID CARBON DIOXIDE. Josef Stoffels, Esslingen-on-the-Neckar, Germany. Filed April 21, 1930. Serial No. 446,138, and in Germany April 7, 1928. 8 Claims. (Cl. 62-121.)

1. The method of producing solid carbon dioxide, which consists in causing liquid carbon dioxide to expand into a plurality of expansion chambers, to produce carbon dioxide snow in said chambers; repeatedly filling a movable press cylinder with snow from one after another of said expansion chambers, in such a manner as to substantially prevent contact of the outer atmosphere with the snow; compressing the snow in said press cylinder each time it is filled, to form a solid block of carbon dioxide; and discharging each solid block from said press chamber after it is formed.

1,822,863. THERMOSTATIC VALVE. Edward J. Levy (now by judicial change of name Edward Levy Mayo), Cleveland, Ohio, assignor to The Bishop & Babcock Mfg. Co., Cleveland, Ohio, a Corporation of Ohio. Filed Aug. 26, 1929. Serial No. 388,309. 5 Claims. (Cl. 236-34.)

1. In a valve device for controlling the flow of fluid in a conduit and responsive to pressure and temperature conditions of the fluid, a tubular valve seat element through which the fluid may flow, a supporting flange on the tubular element adapted to be sealedly mounted in the joint between two mating elements of the fluid conduit, a valve element mounted to oscillate on an axis transversely of the tubular element to

open and close the passageway therethrough, a hanger supported by the flange, a bellows type thermostatic element supported on the hanger, a head on the bellows, a connecting element between the movable valve element and the head, the thermostatic element being adapted to have communicated thereto the pressure and temperature of the fluid to be controlled, the axis of said valve element being positioned at one side of the tube axis whereby the water pressure may tend to move the valve from closed to open position, and the connecting element having pivotal connection with the valve on an axis spaced from the valve axis and adjacent the said tubular valve.

## REISSUES

18,182. COOLING UNIT FOR REFRIGERATING SYSTEMS. Morris F. Booth, Salem, Ohio, assignor to Mullins Mfg. Corp., Salem, Ohio, a Corporation of New York. Original No. 1,798,652, dated March 31, 1931. Serial No. 428,021, filed Feb. 13, 1930. Application for reissue filed July 20, 1931. Serial No. 551,816. 23 Claims. (Cl. 62-126.)

21. The process of making an evaporator from two sheets of metal, which consists in first stamping the sheets of metal to form embossed portions at predetermined points in each sheet, an embossed portion in one sheet consisting of a substantially half cylindrical depression adapted to cooperate with the other sheet to form a header portion, forming laterally extending parallel embossed portions in one sheet, said embossed portions opening at one end into said header portion and terminating near the opposite edge of said sheet, superimposing said sheets so that the header portions and flat walls extending therefrom register, welding the sheets together around the edges and on lines between the embossed portion and up to points closely adjacent the header portions, and then bending the sheets thus secured together to form two side walls and a bottom wall of a sharp freezing chamber.

## ISSUED SEPTEMBER 15

1,822,918. REFRIGERATING APPARATUS. Eugene L. Barnes, Buffalo, N. Y. Filed Feb. 1, 1928. Serial No. 250,977. 3 Claims. (Cl. 62-115.)

1. A lubricant reservoir comprising a chamber, a shell having an open end communicating with said chamber, and a second shell enclosing a heating element and located within said first mentioned shell,

whereby the walls of the shells form an annular liquid receiving space about the heating element, said liquid space having an exit whereby liquid may flow from the chamber through said liquid receiving space.

1,822,915. HEAT EXCHANGE APPARATUS. Rolan Jay Wightman and William Astle, Little Falls, N. Y., assignors to Cherry-Burrell Corporation, Little Falls, N. Y. Filed July 24, 1929. Serial No. 380,582. 14 Claims. (Cl. 257-183.)

2. In a heat exchange apparatus, the combination of a series of tubes arranged side by side, means for securing the tubes at their mid-length portions, means whereby the relative position of the tubes is maintained while the tubes are left free to expand and contract lengthwise, and connectors which join said tubes end to end in series and are coupled to the tubes so as to permit independent movement of the ends of the tubes relative to the connectors.

1,822,987. FASTENING FOR INSULATING JACKETS. Floyd F. Cooper, Westfield, N. J., assignor, by mesne assignments, to Banner Rock Corporation, Alexandria, Ind., a Corporation of Delaware. Filed Dec. 12, 1927. Serial No. 239,503. 2 Claims. (Cl. 154-44.)

1. In an insulating jacket, the combination of a plurality of sections of insulating material having a metal fabric covering, comprising a plurality of interstices, of means for securing said sections together including hook-like members adapted to be inserted in said interstices, and a wire passing about said hook-like members from one to the other across the seam formed between the abutting edges of said sections for drawing the same together and securing them in position.

1,823,002. REFRIGERATING UNIT. John R. Replogle, Detroit, Mich., assignor, by mesne assignments, to Kelvinator Corporation, Detroit, Mich., a Corporation of Michigan. Filed June 8, 1921. Serial No. 475,344. 11 Claims. (Cl. 62-4.)

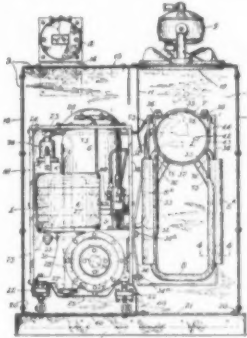
1. In refrigeration apparatus, the combination of a refrigerant compressor, a water cooled condenser to receive the compressed refrigerant, a vaporizer connected with the condenser and with the suction side of the compressor, an electric motor to drive the compressor, an electro-magnetically actuated valve to control the flow of cooling water through the condenser, the windings of said valve and motor being connected in series, a switch in the electric circuit through the motor and the valve magnet for opening and closing said circuit, and means for operating said switch comprising a fluid pressure actuated device responsive to changes of the pressure characteristics of the vaporizer.

1,823,003. REFRIGERATING UNIT. John R. Replogle, Detroit, Mich., assignor, by mesne assignments, to The Guardian Trust Company, trustee, Cleveland, Ohio. Original application filed June 6, 1921, Serial No. 475,344, and in Canada Feb. 11, 1922. Divided and this application filed May 12, 1927. Serial No. 190,770. 21 Claims. (Cl. 62-95.)

7. In a refrigerating apparatus, a metallic duct adapted to contain refrigerant and having parts thereof disposed in spaced parallel relationship, and spaced heat absorbing fins in thermal contact with said spaced parallel parts, the major portion of said fins being disposed in planes substantially perpendicular to said parallel parts.

15. In a refrigeration unit, a vaporizer comprising a header adapted to contain refrigerant liquid, a tube loop connected at both ends to the header, and a heat conducting fin associated with one of the legs of the loop and projecting in a plane substantially perpendicular to said one of the legs for increasing the heat absorbing capacity thereof.

1,823,004. REFRIGERATING UNIT. John R. Replogle, Detroit, Mich., assignor, by mesne assignments, to Kelvinator Corporation, Detroit, Mich., a Corporation of Michigan. Original application filed June 6, 1921. Serial No. 475,344, and in Canada Feb. 11, 1922. Divided and this application filed June 10, 1927. Serial No. 197,943. 39 Claims. (Cl. 62-95.)



1,823,004

9. In refrigeration apparatus, a vaporizer comprising a header, and a plurality of tubes extending from said header, the ends of said tubes being secured to and arranged in a plurality of aligned rows on each side of said header.

36. In refrigeration apparatus, a refrigerant expansion unit comprising a liquid refrigerant evaporator, and a plurality of parallel rows of fins connected in thermal contact with said evaporator, said fins in said rows being arranged in staggered relation to the fins in the adjacent row.

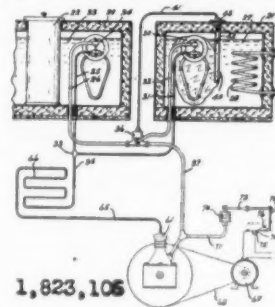
37. A refrigerating apparatus comprising a heat insulated cabinet arranged for the circulation of air internally thereof, a refrigerant evaporating unit disposed within said cabinet and so constructed and arranged as to divide the latter into a plurality of refrigerating compartments, said evaporating unit comprising a substantially planular solid metallic wall having imperforate side portions, one of said side portions being irregular in cross sectional configuration and embracing depressions extending inwardly of the wall and integrally united with the other side portion for increasing the heat transfer surface of the wall and providing

between the said side portions a plurality of passages formed internally of the wall for the distribution and evaporation of refrigerant liquid, the opposite sides of said planular solid metallic wall being so positioned as to absorb heat from different refrigerating compartments, means for supplying refrigerant liquid to said passages in said wall, and a refrigerant condensing unit for exhausting and condensing the fluid evaporated in said passages.

1,823,079. REFRIGERATING APPARATUS. Frank W. Andrews, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corporation, a Corporation of Delaware. Filed Mar. 31, 1927. Serial No. 179,983. 1 Claim. (Cl. 62-126.)

An evaporator comprising header means, a plurality of ducts connected in parallel circuit relation and containing liquid refrigerant and having ends thereof connected with the header means for discharging vaporized refrigerant thereto, portions of said ducts beneath the normal level of the liquid lying substantially horizontal, and means within the ducts for accelerating the formation of gas bubbles in said ducts, said means comprising material having a plurality of sharp corners on which said bubbles will readily form.

1,823,106. REFRIGERATING APPARATUS. Jesse G. King, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corporation, a Corporation of Delaware. Filed April 29, 1925. Serial No. 26,642. 11 Claims. (Cl. 62-3.)



1,823,106

1. A refrigerating system, comprising in combination, a cooling compartment containing a quantity of liquid, means for cooling said compartment for freezing said liquid, and means responsive to the solidification of the liquid within the compartment for controlling the temperature of said cooling means.

1,823,124. REFRIGERATING UNIT. John R. Replogle, Detroit, Mich., assignor, by mesne assignments, to Kelvinator Corporation, Detroit, Mich., a Corporation of Michigan. Original application filed June 6, 1921. Serial No. 475,344, and in Canada Feb. 11, 1922. Divided and this application filed Oct. 10, 1927. Serial No. 225,273. 10 Claims. (Cl. 62-116.)

1. In air cooling apparatus, the combination of means comprising a refrigerant vaporizer for absorbing heat from the air to be cooled; a refrigerant compressor; a condenser; said compressor, condenser and vaporizer being operatively connected to form a closed refrigerant system; a motor for driving the compressor; means directly responsive to the temperature of the said heat-absorbing means for controlling the operation of the compressor motor; means comprising a fan for directing the air to be cooled over the said heat-absorbing means; a motor for driving said fan; and means responsive to the temperature of the air to be cooled for controlling the operation of the fan motor.

1,823,129. CLUTCH. Harry R. Smith and Mortimer W. Fish, Dayton, Ohio, assignors to Frigidaire Corporation, Dayton, Ohio, a Corporation of Delaware. Filed Feb. 29, 1928. Serial No. 257,991. 6 Claims. (Cl. 192-105.)

1. A clutch comprising in combination rotatable driving means, rotatable driven means, and means for connecting the driving and driven means in power transmitting relation only when the driving means is rotating above a critical speed including a plurality of weights mounted on the driving

means and arranged to be rocked by centrifugal force, surfaces on the weights and spring means exerting centripetal force on the surfaces, the parts being so constructed and arranged that the spring means automatically acts upon different portions of the surfaces above and below the critical speed.

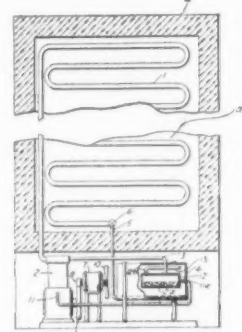
1,823,187. REFRIGERATING TRAY. Michael K. Buchanan and Albert G. Horton, Norfolk, Va. Filed Feb. 18, 1930. Serial No. 429,378. 2 Claims. (Cl. 62-108.5.)

1. In an ice cube forming rack, a pair of parallel partition members, a housing attached to each of the partition members and extending over a substantial area of the same, and a resistance element confined in the housing.

1,823,275. MECHANICAL REFRIGERATION UNIT. Lester U. Larkin, Atlanta, Ga., assignor, by mesne assignments, to The Guardian Trust Company, Cleveland, Ohio. Filed Mar. 25, 1929. Serial No. 349,859. 11 Claims. (Cl. 62-95.)

2. A refrigerating unit including a plurality of pipes spaced apart and in parallel relation to each other, a plurality of rectangular heat absorbing fins, each of which is in frictional engagement with all of said pipes and extends perpendicularly thereto, and means for protecting the corners of all of said fins and for holding them in spaced relation to each other.

1,823,353. APPARATUS FOR REFRIGERATION. Ransom W. Davenport, Detroit, Mich., assignor to Chicago Pneumatic Tool Company, New York, N. Y., a Corporation of New Jersey. Filed Apr. 2, 1927. Serial No. 180,398. 10 Claims. (Cl. 62-115.)



1,823,353

1. Refrigerating apparatus of the compression-expansion type comprising an evaporator, a compressor and a condenser connected together to form a closed cycle system, said condenser being arranged to be externally cooled, said compressor having a lubricating system, and thermal means for separating out lubricant from the working substance and restoring it to the lubricating system of said compressor, at least a part of said means being arranged to be insulated by said condenser against excessive loss of heat to said compressor.

1,823,393. METHOD OF AND MEANS FOR COOLING PASSENGER CARS IN STATIONS. Charles W. Galloway, Baltimore, Md. Filed Sept. 8, 1930. Serial No. 480,490. 11 Claims. (Cl. 62-24.)

1. The method of temperature-conditioning the interiors of passenger coaches while standing in a station or transportation yard, which consists in drawing air from the atmosphere outside the coach through a cooling course, cooling the air to a temperature lower than the internal temperature of the coach, forcing the cooled air into the coach at one end of the coach for travel in the direction toward the other end of the coach, and positively withdrawing the relatively warm air from the coach at the opposite end of the coach until a desired internal temperature condition is reached.

1,823,444. REFRIGERATING CABINET. John Edward Gloekler, Pittsburgh, Pa. Filed Dec. 3, 1929. Serial No. 411,266. 7 Claims. (Cl. 62-89.6.)

1. In a refrigerating cabinet, the combination of

(Continued on Page 9, Column 1)

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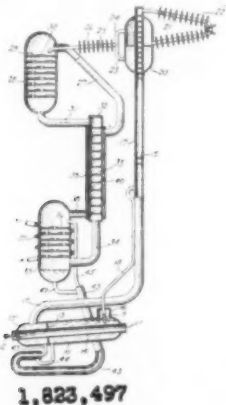
(Continued from Page 8, Column 5)

tion of a main base having a front upwardly extending sill, a rear upwardly extending wall, an intermediate upwardly extending fixedly incorporated dividing projection providing a major containing chamber and a minor refrigerating chamber, a series of spaced apart individual supporting strips extending from the dividing projection to the front sill, a shelf covering the minor refrigerating chamber and resting on the rear wall, a forwardly and upwardly sloping rear wall extending from said shelf over the major chamber to its top, a rearwardly and upwardly sloping front wall of glass extending from the front sill over the major chamber to its top, a covering shelf for the major chamber on the tops of said rear and front walls, and a continuous sheet metal lining covering the inner rear wall surface and bottom of the refrigerating chamber, rounded upwardly over the dividing projection, and then continued over the bottom surface of the major chamber and the front sill and terminating upwardly against the inner bottom portion of the front wall.

1,823,456. REFRIGERATION. Alvar Lenning, Jackson Heights, N. Y., assignor to Electrolux Servel Corporation, New York, N. Y., a Corporation of Delaware. Filed June 10, 1929. Serial No. 369,721. 10 Claims. (Cl. 62-119.5.)

1. Refrigerating apparatus comprising an evaporator, said evaporator comprising an ice producing section, a food space cooling section below said ice producing section, an upper condenser member, a lower condenser member, means for conducting liquid refrigerant from the upper condenser member to the ice producing section and means for conducting liquid refrigerant from the lower condenser member to the food space cooling section.

1,823,497. CONDENSER AND RECTIFIER. Alvar Lenning, Jackson Heights, N. Y., assignor to Electrolux Servel Corporation, New York, N. Y., a Corporation of Delaware. Filed May 28, 1929. Serial No. 366,699. 6 Claims. (Cl. 257-36.)

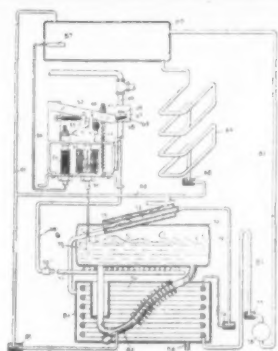


1,823,497

1. Condensing and rectifying means comprising an upwardly extending vapor conduit, means forming a liquid holding chamber in heat exchange relation with said vapor conduit, a first condenser conduit connected between said vapor conduit and said liquid holding chamber and a second condenser conduit having two branches, one branch being connected to said chamber at a relatively low point and the other being connected to said chamber at a relatively high point.

1,823,511. THERMIC CONTROL DEVICE. Estel C. Raney, Columbus, Ohio. Filed Sept. 29, 1928. Serial No. 309,339. 8 Claims. (Cl. 62-5.)

1. In a refrigerating apparatus, a heater for heating a part of the apparatus, a movable member for connecting and disconnecting the heater with a source of supply of that which the heater consumes to produce heat for producing changes in temperature of a part of the apparatus, means for operating the movable member for connecting the heater, a plurality of thermic de-



1,823,511

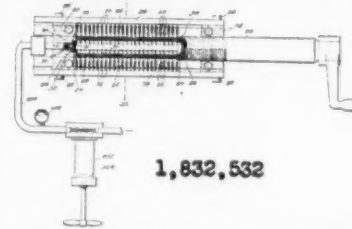
ices for controlling the said means in response to changes in the temperature of a plurality of parts of the apparatus, and means interposed between the thermic devices for transferring the control of the operating means from one thermic device to another thermic device.

1,823,517. TOP FOR REFRIGERATOR CABINETS. Nelson Martin Vandegrift, Philadelphia, Pa., assignor to Sheip & Vandegrift, Inc., Philadelphia, Pa., a Corporation of Pennsylvania. Filed June 15, 1929. Serial No. 371,117. 6 Claims. (Cl. 217-74.)

1. A lining for an opening through the top of a refrigerator cabinet through which access may be had to a chamber of the said cabinet, comprising a flexible ring member of insulating material located in the said opening, said ring member having a groove upon its inner side which extends entirely around the same, which groove is located in a plane which is substantially at right angles to the axis of the said ring adjacent the lower end thereof, and an integral ring member of thin sheet metal having an outwardly extending flange at its upper edge which projects into the said groove whereby the said integral metal ring member is held in detachable engagement with the said

flexible ring member, the lower portion of the said metal ring member projecting a substantial distance below the lower edge of the said flexible ring member.

1,823,532. METHOD OF FORMING BELLOWS FOLDS. Walter B. Clifford, Framingham, Mass., assignor, by mesne assignments, to Clifford Manufacturing Co., Boston, Mass., a Corporation of Delaware. Filed Oct. 4, 1924. Serial No. 741,688. Renewed April 13, 1927. 24 Claims. (Cl. 153-73.)



1,823,532

1. The method of forming a corrugated tubular thermostat which consists in forming a flange on the open end of a tubular blank, assembling a two part head about the flange with an opening therethrough for the introduction of liquid, corrugating the tube blank while supported internally by pressure exerted through the fluid introduced through the opening in the head, and finally sealing the opening in the head.

1,823,698. METHOD FOR TREATING SULPHUR DIOXIDE GAS. Birger W. Nordlander, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 1, 1929. Serial No. 375,226. 5 Claims. (Cl. 23-178.)

1. The method of removing substantially all but a trace of sulphur trioxide from sulphur dioxide gas, which consists in passing such gas through a body containing active sulphur.

1,823,725. REFRIGERATING APPARATUS. Samuel C. Carney, Tulsa, Okla., assignor to Shell Petroleum Corporation, a Corporation

of Virginia. Filed Dec. 7, 1925. Serial No. 73,851. 8 Claims. (Cl. 62-106.)

1. In a refrigerating apparatus, the combination of a hermetically sealed housing, a hollow drum adapted to be rotated in the housing, means for admitting a liquid refrigerant to the interior of said drum, means for maintaining a relatively small amount of liquid refrigerant against a relatively large area of the interior wall of the drum, means for admitting a liquid to be frozen to the exterior of said drum, means for removing the frozen liquid from the exterior of the drum, and means for compacting and removing the frozen liquid in cake form from said housing.

1,823,804. COMPRESSOR BEARING SEAL. Charles C. Spreen, Detroit, Mich. Filed Dec. 27, 1926. Serial No. 157,208. 1 Claim. (Cl. 286-11.)

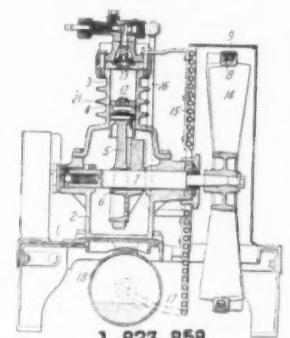
In a bearing seal, the combination with a compressor casing having an aperture therethrough, a closure plate for said aperture provided with a bearing sleeve and an annular seat formed on the interior surface of said plate, and a crankshaft having shoulders interiorly of said casing formed by reduced portions thereof; of a seal structure arranged interiorly of said casing including a flexible annular diaphragm fixedly sealed at the inner edge against one of said crankshaft shoulders and rotatably sealed against said seat at the periphery of said diaphragm, means for fixedly sealing the inner edge of said diaphragm to said shaft, and means for rotatably sealing the periphery of said diaphragm to said seat.

1,823,805. COMPRESSOR BEARING SEAL. Charles C. Spreen, Detroit, Mich. Filed Dec. 27, 1926. Serial No. 157,209. 1 Claim. (Cl. 286-11.)

In a bearing seal, the combination with a compressor casing having an aperture, a substantially cylindrical closure for said casing aperture, said closure being provided with an aperture therethrough, a bearing sleeve adapted to fit in said closure aperture, said bearing sleeve being outwardly flanged at the end thereof adjacent the inner surface of said closure to form a seat thereon, and a crank shaft having a circular integral flange adjacent said bearing sleeve; of a seal structure disposed within said cylindrical closure and including a tubular bellows, bases secured to each end of said bellows, one of said bases being fixedly sealed to said crank shaft flange, an anti-friction ring secured to the other of said bases to form a rotatable frictional joint with said bearing flange, and spring means for resiliently maintaining the frictional joint between said seal structure and said bearing sleeve.

1,823,806. ICE MAKING AND SHAVING MACHINE. Charles C. Spreen, Detroit, Mich., assignor to Kelvinator Corporation, Detroit, Mich., a Corporation of Michigan. Filed Apr. 29, 1927. Serial No. 187,544. 6 Claims. (Cl. 62-106.)

1. In a mechanical refrigerating apparatus, a refrigerant evaporator drum, means for rotatably supporting said drum including a rotatable shaft fixed to one end of said drum, and an externally disposed stationary shaft terminating adjacent the opposite end of said drum, said stationary shaft having a refrigerant inlet duct therein leading into said drum, and means associated with said stationary shaft for conducting vaporized refrigerant from said drum.



1,823,858

1,823,858. COMPRESSOR-CONDENSER UNIT. Frederick Carl Geiler, Dayton, Ohio. (Concluded on Page 10, Column 2)

KEROTEST Valve designers have worked hand in hand with refrigeration engineers to produce a line of refrigeration valves with unique advantages of design found in no other types.

The patented back seating metal to metal joint is a noteworthy example—a feature which makes them the only valves obtainable with a double seal.

As you may note in the above illustration, we have designed the end of the stem so that the bevelled sides make a positive metal to metal closure against pressure in both the open and closed positions.

In Kerotest, you have a choice of 1, 2 and 3 way valves with packing or in the diaphragm packless type—each one of which is pressure tested and pressure proved. They are all listed as standard by the Underwriters Laboratories.

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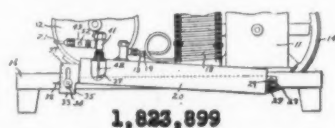
# LATEST REFRIGERATION PATENTS

(Concluded from Page 9, Column 5)  
assignor to Trupar Manufacturing Company, Dayton, Ohio, a Corporation of Ohio. Filed July 18, 1927. Serial No. 206,534. 2 Claims. (Cl. 62-115.)

1. A unitary structure including a compressor pump, a supporting stand for the pump, a receiver tank located beneath the supporting stand, a drive shaft for said pump, a fan wheel mounted on said drive shaft, and a condenser coil of evolute form stationarily arranged in a vertical plane intermediate the fan wheel and the compressor pump and substantially concentric with the drive shaft, the inner end of the evolute condenser coil being connected with the compressor and the outer end thereof being connected with the receiver.

## ISSUED SEPTEMBER 22

1,823,899. REFRIGERATING APPARATUS. Harry B. Hull, Dayton, Ohio, assignor to Frigidaire Corporation, Dayton, Ohio, a Corporation of Delaware. Filed June 27, 1930. Serial No. 464,304. 12 Claims. (Cl. 62-115.)



1. A refrigerating apparatus comprising in combination, a refrigerant circulating unit including a container for a quantity of liquid refrigerant, said container being pivotally mounted to said unit, means communicating with said container for detecting the flow of refrigerant therefrom, and means associated with said container for indicating the quantity of liquid refrigerant therein upon movement of the container.

1,823,918. VALVE MECHANISM. Walter E. Shew, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corporation, a Corporation of Delaware. Filed Oct. 27, 1926. Serial No. 144,605. 4 Claims. (Cl. 230-221.)

1. In a device of the character described, the combination with a piston having a head portion including an aperture concentric with the axis of the piston, and an aperture offset from the first mentioned aperture; a rotatable valve in said head, said valve including two members, one of which has an apertured plate portion resting on the piston head and a central stud portion extending into the central aperture of said piston head, the stud portion having a transverse slot in its outer surface; the other member comprising a flanged portion having a slot and spaced from the interior surface of the piston head, said flanged portion having a central stud extending into the central aperture in the piston head, said stud being provided with a transverse projecting tongue adapted to extend into the transverse slot

of the other valve member; a screw stud holding the two members engaged; a spring washer interposed between the interior of the piston head and the second valve member so as to hold the plate portion of the valve against the outer surface of the piston head; a pitman pivotally secured to the piston; and a tongue ring secured to the pitman, the tongue of said ring engaging the slot in the flanged portion of the valve member in the piston so as to operate said valve.

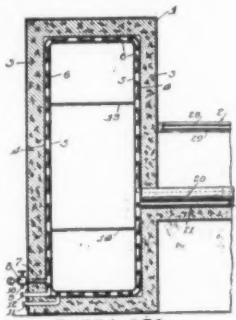
1,823,919. REFRIGERATING APPARATUS. Harry F. Smith, Dayton, Ohio, assignor to Frigidaire Corporation, Dayton, Ohio, a Corporation of Delaware. Filed March 28, 1929. Serial No. 350,711. 7 Claims. (Cl. 257-262.)

1. A tube consisting of separately formed longitudinal sections providing separate and distinct passages for the tube, and means for holding the sections together to complete the tube and to provide extended radiating surfaces on the exterior thereof.

1,823,920. GASKET. Anthony T. Stock, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corporation, a Corporation of Delaware. Filed Feb. 6, 1926. Serial No. 86,597. 2 Claims. (Cl. 288-1.)

1. A gasket made wholly of a plastic metal and having a central opening and a plurality of perforations arranged in spaced relation about said opening so as to provide portions of approximately equal cross-sectional area between adjacent perforations and between the perforations and edges of the gasket.

1,824,158. REFRIGERATING APPARATUS. Herman W. Kleist, Chicago, Ill., assignor to Dole Refrigerating and Machine Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 28, 1929. Serial No. 417,211. 10 Claims. (Cl. 62-95.)



1. A refrigerating apparatus comprising a refrigerator, means for maintaining a freezing temperature in said refrigerator continuously so that the food therein may remain in a frozen condition, and an elongated laterally extending display device associated

with said refrigerator, said display device being provided with means for maintaining food in a frozen condition while being displayed the individual cooling means being surrounded by a vacuum.

1,824,175. BRINE RETAINING AND DISCHARGE VALVE MECHANISM. Vincent Schulis, Chicago, Ill., assignor, by mesne assignments, to Industrial Patents Corporation, Chicago, Ill., a Corporation of Illinois. Filed Feb. 23, 1928. Serial No. 256,450. 3 Claims. (Cl. 137-21.)

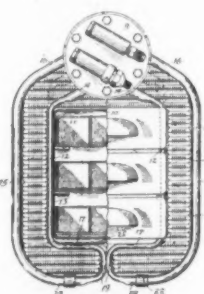
1. In a device of the class described, a valve body having a valve seat, a vertical tubular guide connected at its lower end with the valve body, a combined hanger and guide bracket composed of spaced hanger portions provided with means for engaging frame members of a car, the space between the hanger members forming a guide, means for connecting the upper end of the tubular guide with the said bracket, a valve plunger within the valve body cooperating with the valve seat, and an operating rod connected with and carrying the valve plunger and extending through and guided by the tubular member and the space between the hanger members.

1,824,527. REFRIGERATING SYSTEM. Charles G. Bach, Milwaukee, Wis., assignor to The Vilter Manufacturing Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed June 29, 1928. Serial No. 289,105. 6 Claims. (Cl. 62-126.)

1. A cooling unit for a refrigerating system comprising a liquid header, a plurality of extension headers extending from said liquid header, a plurality of other headers spaced at a distance from said liquid header, and extension headers, pipes connecting each of said extension headers with one of the second mentioned headers, a suction header spaced at a distance from the second mentioned headers, a plurality of extension headers extending from said suction header, and a plurality of pipes connecting each of the suction extension headers with one of the second mentioned headers.

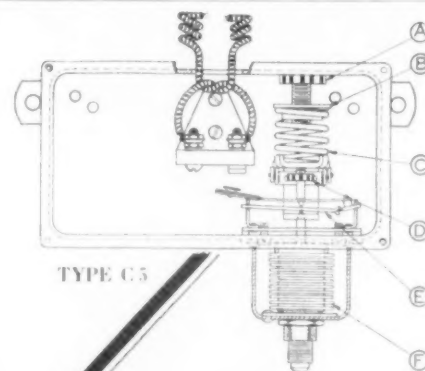
1,824,535. APPARATUS FOR CONTROLLING THE TEMPERATURE OF UNIT CONTAINERS. Lloyd G. Copeman, Flint, Mich., assignor to Copeman Laboratories Company, Flint, Mich., a Corporation of Michigan. Filed Feb. 8, 1926. Serial No. 86,719. 5 Claims. (Cl. 62-101.)

1. A refrigerating unit comprising a plurality of container units and a plurality of alternately positioned expansion coils and circulating coils for a non-freezing solution arranged in the walls of only one of said units said second named coils extending to and being arranged in at least one adjacent unit.



1,824,575

1,824,575. COOLING UNIT FOR REFRIGERATORS. Franklin G. Slagel, Buffalo, N. Y., assignor to Fedders Manufacturing Com-



## Snapon Controller

THIS TAG Snapon Controller is ideal for domestic and commercial refrigerators, water coolers and ice cream cabinets where a high-pressure or high-temperature cut-out is not required.

Underwriters' Laboratory approval is guaranteed on this instrument when used with 1 1/2 H. P. motors A. C., 110-220 volts; 1 H. P. motors D. C., 110 volts; 1/2 H. P. motors D. C., 220 volts.

Here are some of the outstanding specifications:

### IF PRESSURE ACTUATED:

Differential may be from 3 lbs. or its equivalent in vacuum and pressure to 25 lbs. or its equivalent in vacuum and pressure. Differential may be increased or decreased in accordance with instructions pasted on inside cover of controller. It may be run up or down over the range. 1/4" S. A. E. connection supplied, unless otherwise specified.

### IF TEMPERATURE ACTUATED:

Differential may be from 5° to 25° F. Differential may be increased or decreased as described above. And standard bulb 3/8x3 1/2", 9/16x2 3/4", 3/8x6" or Spiral bulb 3/8x12" may be supplied with this instrument. Connecting tube may be from a few inches to 10 feet in length.

**C. J. TAGLIABUE MFG. CO.**  
PARK & NOSTRAND AVES.  
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Type  
**C5**

## MINNEAPOLIS - HONEYWELL SPONSORS 'WONDER HOUR'

MINNEAPOLIS—The "Wonder Hour," which was introduced to the nation's radio audience on Sunday, Sept. 27, over the National Broadcasting Company's red network, marked the beginning of the second series of fall programs sponsored by the Minneapolis-Honeywell Regulator Co.

This program, which was the first of a series of 13 weekly Sunday afternoon broadcasts, commencing at 3:30 p. m., eastern standard time, is dedicated to the wonders which modern engineering has accomplished in automatic control of heat, cold and pressure.

The Wonder Hour promises to be one of the outstanding musical programs of the fall season. A specially selected orchestra from the National Broadcasting studios has been chosen, under the direction of Leroy Shields, musical director of the National Broadcasting studios in Chicago. Ruth Lyon, one of America's greatest sopranos, and Charles Sears, tenor, will be the regular artists on this program.

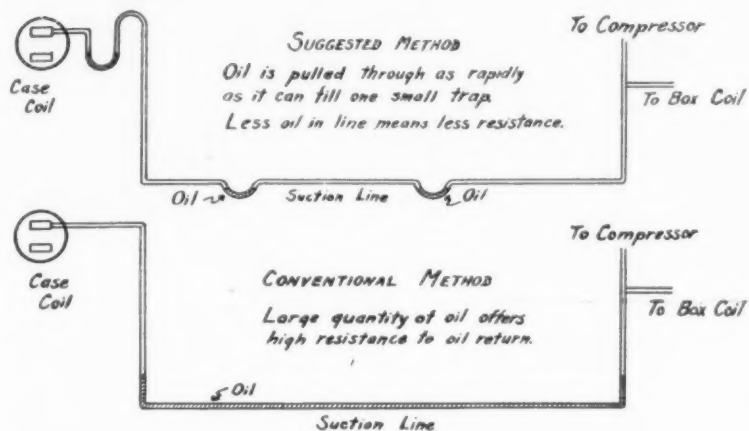
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## SERVICE MEN'S FORUM

A Column Devoted to the Problems of Service and Installation Men

To encourage the exchange of practical ideas in the service and installation of electric refrigerators, this department is conducted as an open forum for service and installation men. What methods have you devised to improve your field work? You are invited to send in suggestions to the Engineering Editor, Electric Refrigeration News, 550 Maccabees Bldg., Detroit. One dollar will be awarded for each new idea used in this column.



IN THE Engineering Section of the Aug. 12 and Sept. 9 issues are published diagrams illustrating means of overcoming "short-cycling" and fluctuating temperatures in an installation where an oil trap exists in the suction line.

Both recommendations had merit, but I have a simpler and less expensive remedy. A little reasoning and some testing will prove it.

If we first examine the cause, it becomes clear that the trouble is brought about by the fact that where there is a trap of sufficient drop, length, and rise, a considerable quantity of oil collects in the line necessitating a higher pressure on the coil side of the trap than on the compressor side to force the oil and vapor through.

When the friction offered to this oil, and consequently the pressure difference between both sides of the trap, is too high, the control, actuated by the crankcase pressure, cuts out on the reduced pressure before the coil pressure, and consequently temperature, has been lowered.

Of course, by running two suction lines, one oil and one vapor, to the compressor this trouble can be overcome. The disadvantage however, is that an unknown quantity of oil lies in the tubing, whereas it should be in the crankcase serving the purpose for which it was intended—at the proper level.

In outlining the cause of the condition I have italicized the word "length." The height of the average trap is not extreme, but sometimes its length permits dozens of feet of tubing to fill with the oil.

This filling with oil is possible because the vapor can pass over the oil while the line is filling up. Then during an idle cycle, the float valve will probably leak sufficiently to overflow oil into the remaining space in the tubing.

### OVAL TUBING, B-X CABLE ARE ANNOUNCED BY G. E.

SCHENECTADY, N. Y.—General Electric Co. has announced two new additions to its line of wiring materials, oval tubing and oval BX cable.

Oval tubing is a thin-walled, rigid metal raceway designed for under-plaster extension installations in walls and ceilings. It is installed by cutting a groove in the plaster, inserting and fastening the tubing, and covering it with a layer of plaster. A specially-designed toggle with a loop securely holds the tubing in place, insuring a firm installation.

It may be used in direct connection with rigid conduit by joining it to the conduit with one fitting, according to G. E. engineers. The tubing provides an ideal extension for any existing type of raceway, and may be interchanged with any other wiring system.

The oval BX cable incorporates all the features of BX cable plus one more—its oval shape, a factor which makes it adaptable for all exposed or surface wiring. Neat installations are possible because the oval cable nestles into the plaster without the need for channeling the walls and ceilings, and fits snugly around corners and projections.

where the vapor flowed during the previous cycle. Then the trap is nicely flooded and the trouble begins.

The longer the oil trap the greater the resistance offered to the coil pressure. The answer then seems to be that if we can't limit the length of the trap, limit the quantity of oil in the trap.

This can be done by forcing the oil through in slugs, rather than in drops that collect in the large, long traps. Slugs can be forced by merely bending the suction line at the coil down two or three inches below the valve, and then up two or three inches above the valve. Then also create sharp traps of about 3 in. in height, and 5 or 6 in. in length, at 4- or 5-ft. intervals all through the large, long trap.

Thus the small slugs of oil in the short traps offer much less resistance to pressure than the long gradual trap.

J. A. TERREL,  
Copeland Refrigeration Co.,  
160 E. Illinois St., Chicago, Ill.

### Moving Refrigerators On the Floor

REFRIGERATORS can be moved about a customer's premises very easily by placing a little soap suds or wax on the floor or linoleum wherever the cabinet is to be moved. The method will also prevent damage to the floors or floor coverings.

F. KINZLER,  
Industrial Tech Institute,  
Pittsburgh, Pa.

### W. H. CROSBY NOW CHAIRMAN OF STAMPING FIRM

BUFFALO, N. Y.—William H. Crosby has been elected chairman of the board of the Crosby Co., local manufacturer of metal stampings for the electric refrigeration industry. Henry W. Crosby has been named president, while Fred C. Burkhardt, chief engineer, was also made secretary of the company.

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## Well Dressed Service Men



Los Angeles service men adopt new uniforms.

## SERVICE MEN DRESS IN CLASSY OUTFITS

LOS ANGELES—So that their service staff will present a neat appearance when making apartment house and individual home service calls, Refrigeration Service, Inc., of this city, has changed the uniform of its operators from the all white cover-all to the workmanlike outfits illustrated above.

These consist of tan gabardine trousers and white shirts. Laundry charges, says L. P. Roth, head of the organization, are borne by the company, trousers being changed weekly and shirts every other day. The new uniform, he says, has been found to be more satisfactory than the white cover-all which soiled easily. The latter, however, is still used for heavy work as a protection for the standard uniform.

## IMPERIAL BRASS DESIGNS PAINT SPRAY EQUIPMENT

CHICAGO—A complete line of lacquer and enamel spray equipment for use in refrigeration service stations and refrigeration factories has been developed by the Imperial Brass Mfg. Co., here. Spray guns, oil and water separators, pressure feed containers, complete sets of spray equipment, booths, tanks, fittings, and accessories for the application of paint, lacquer or enamel are included among the new products.

Offered to service stations is the small 1/4-hp. portable spray set weighing 62 lbs. Its spray gun contains 1 qt. of finishing material, and is connected to the compressor equipment with 15 ft. of heavy duty air hose. Larger complete spray sets are offered in the following sizes: 1/2-, 3/4-, 1 1/2-, 3-, and 7 1/2-hp.

The spray booths are fabricated of 22-gauge sheet steel panels, with an exhaust fan on the top to draw off the fumes. The booths are all 6 ft. 6 in. high, and are made in the following widths: 2-, 3-, 4-, 5-, 6-, 8-, 10-, and 12-ft.

## Kelvinator Comforts African Resort

IFRANE, Africa—All of Africa is not as hot as most people suppose.

Ifrane, French Morocco, about a day's journey from Casa Blanca, in an altitude of 4,000 feet in the Atlas Mountains, is a much patronized resort for Europeans who, in summer, seek fresh air and a chance to indulge in winter sports.

The Grand Hotel Balina, commanding scenic vistas of much grandeur, is a mecca for tourists. It is a modern hostelry, even to Kelvinator electric refrigeration. Its cooling system includes a short order counter connected to an R-30 Kelvinator condensing unit and a bar counter connected to an F-30 Kelvinator condensing unit.

## TRICHLORETHYLENE USED FOR DEGREASING, REFRIGERANT

NIAGARA FALLS, N. Y.—Thermodynamic properties of trichlorethylene which make it suitable for use as a refrigerant in certain low pressure applications, are presented in a new booklet just issued by the Roessler & Hasslacher Chemical Co., here. The refrigerating effect of "Tri," in changing from a liquid at 86° F. to vapor at 5° F. is 93.57 B.t.u. per lb.

Trichlorethylene is a heavy, colorless mobile liquid which boils at 188° F., according to the new bulletin. It is not flammable or explosive, nor does its vapor form combustible or explosive mixtures with air, the booklet claims. Even in the presence of water, at comparatively high temperatures, it is not supposed to attack the common metals.

The chemical has found considerable application in fat and oil extraction, purification of explosives, and for degreasing of metals. Tri is used to remove grease from metals, leathers, raw wool and other textiles, machines, and cast and molded articles, the booklet points out.

## Dependable, Automatic Controls for Temperature and Water

Now you can assure accurate temperature and water control for commercial jobs at little cost with these two units—the 858 Model LL-1 MERCROID and the 682 ARCO SOLENOID VALVE. For frozen food cases, milk coolers, soda fountains, ice cream cabinets and many other kinds of equipment, the Mercoid gives perfect automatic temperature control. For water cooled jobs, the Arco Solenoid valve insures the highest efficiency of your unit, yet prevents waste of water.

The 858 Model LL-1 MERCROID is furnished in ranges minus 10° to plus 25° and plus 10° to plus 50° with a differential as close as 2 1/2° or as wide as 12°. It can be adjusted easily for any cut-in or cut-out point. The Arco Solenoid Valve opens when the motor starts and closes tightly when the motor stops. It is made for any current and for water pressure up to 200 lbs.

Large production makes possible moderate prices on these two units. Write today for complete details of Mercoid controls for all refrigerating needs.

Accessories Division

**AMERICAN RADIATOR COMPANY**

5842 Trumbull Avenue, Detroit, Mich.

Division of

AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

## REFRIGERATION AIDS PHOTOGRAPHIC WORK

BAY CITY, Mich.—The problem of keeping developing solutions at the necessary low temperatures has been solved by the Michigan Photo Shop, here, by the use of Copeland electric refrigeration equipment with the developing tanks.

The equipment includes three tanks with a capacity of about 30 gallons each. Temperatures in each tank should be held within a variation of but four degrees, between 64° and 68° F. Because the warm films of several hundred feet add an extra cooling burden on the first tank to treat the films, about 40 ft. of refrigerating coil is placed on this tank.

This brings the temperature of the first tank down to 62° or 63° F. when not in use, and with the immersion of the warm films, the additional heat brings the temperature up to the required degree and all tanks are maintained at the same temperature. Each of the other two tanks is provided with 25 ft. of refrigerating coil. The temperature control tube is located in the center tank.

G. E. Osborn of Chevrier-Schepper Co., local Copeland dealers who made the installation, reports that the temperature of the developing room which was sometimes almost unbearable in hot weather was reduced 10 or 12 degrees when cooling equipment was installed. This is the reason why the refrigeration coils are not insulated.

## ELECTRICAL INSPECTORS SUPPORT UNDERWRITERS

DALLAS, Tex.—The southern division of the International Association of Electrical Inspectors closed a three-day session of their southern sectional meeting at the Adolphus hotel, Dallas, Wednesday, Sept. 23, with the election of officers of the organization.

C. S. Graham of Jacksonville, Fla., was elected president, and E. L. Kenderdine, Fort Worth, Tex., was named first vice president. Other officials of the organization are: T. W. Barry, Richmond, Va., second vice president, and Joseph Whitner, Atlanta, Ga., secretary-treasurer.

Members of the executive committee were elected as follows: N. E. Cannady, Raleigh, N. C., chairman; S. Wynne Smoot, Dallas; H. L. Wills, Atlanta, Ga.; J. G. Fisher, Jackson, Miss.; and E. A. Thibordeaux of Thibordeaux, La.

The convention affirmed, through resolution, its support of the work of the Underwriters Laboratories in examining and listing all electrical products that conform to suitable standards of safety. This examination to apply to all products entering into or attached to interior wire installations.

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